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THE CAUSES OF ILLNESS AT DIFFERENT AGES

Hagerstown Morbidity Studies No. VII²

By EDGAR SYDENSTRICKER, Statistician, United States Public Health Service

In this paper the general results of the Hagerstown morbidity study which relate to the causes of illness at different ages are summarized briefly. The tables and graphs, it is believed, present the principal findings with respect to this phase of the inquiry, but a word or two of explanation may assist the reader who is not conversant with the previous reports in this series.

The record of illness was obtained from a responsible informant (usually the housewife) in each household canvassed by a trained field assistant and was supplemented by diagnoses from attending physicians in practically all cases where medical care was given, and by records of school attendance and of clinics. Forty-six per cent of the illnesses were attended by physicians; if we omit "colds" and minor digestive illnesses, 65 per cent were so attended and were diagnosed by medical practitioners. Two-thirds of the population studied were observed at intervals of 6 to 8 weeks for at least 24 of the 28 months, which was the duration of the study. Less than 1 per cent of the illnesses had to be classified as "ill-defined and unknown." For further details as to the scope and method of the study, definition of illness, etc., reference is made to the first paper of this series.

In those cases in which more than one cause was recorded, recourse was had to the practice followed in the classification of the causes of death, namely, to assign only one cause to each illness. This arbitrary procedure does not, however, affect a very large proportion

¹ From the office of statistical investigations, U. S. Public Health Service.

² Other Hagerstown morbidity studies published are—

I. A Study of Illness in a General Population Group: Method of Study and General Results. Pub. Health Rep., vol. 41, No. 39, Sept. 24, 1926. Reprint No. 1113.

II. The Reporting of Notifiable Diseases in a Typical Small City. Pub. Health Rep., vol. 41, No. 41, Oct. 8, 1926. Reprint No. 1116.

III. The Extent of Medical and Hospital Service in a Typical Small City. Pub. Health Rep., vol. 42, No. 2, Jan. 14, 1927. Reprint No. 1134.

IV. The Age Curve of Illness. Pub. Health Rep., vol. 42, No. 23, June 10, 1927. Reprint No. 1163.

V. A Comparison of the Incidence of Illness and Death. Pub. Health Rep., vol. 42, No. 24, June 24, 1927. Reprint No. 1167.

VI. The Illness Rate Among Males and Females. Pub. Health Rep., vol. 42, No. 30, July 29, 1927. Reprint No. 1172.

of the cases. Of the 17,847 illnesses observed, only 3.7 per cent had more than one cause or condition recorded. The procedure in classifying these cases according to a "primary" cause was as follows:

(1) The first cause in order of occurrence, applied largely to acute conditions with common complications, such as influenza and pneumonia, or measles and otitis media.

(2) Acute conditions ordinarily were given preference over an attack of some chronic condition. Thus, in case of grippe and chronic rheumatism, the grippe was considered primary.

(3) The condition or disease most specifically associated with the period of sickness was preferred over a minor condition which preceded or accompanied it. For example, in tooth abscess and rheumatism, the latter was made primary. When it was difficult to determine the factual basis, the more serious condition was chosen.

(4) The more specific cause was given preference over a statement of a symptom.

(5) When none of the above rules could be applied, and the history of the individual gave no basis for decision, the condition mentioned first by the informant was made primary. The number of such cases was very small.

The size of the experience in the different age groups employed is shown in the following table:

Table 1.—Number of white persons observed for the incidence of illness in Hagerstown, Md., December 1, 1921-March 31, 1924, expressed in terms of "years of life observed," and classified by age

Age in years	Number of years of life observed	Age in years	Number of years of life observed
All ages ¹	16, 517 1, 777 2, 105 1, 713	15-24	2, 526 4, 643 2, 575 810

¹ Includes 368 years of life observed in persons whose ages were not exactly enough known for classification according to the groupings used.

With respect to the term "years of life observed," it should be stated that of necessity certain individuals and families were observed for less than the entire period of the study. In order, therefore, to state the morbidity results in terms of annual incidence rates it was necessary to resort to the familiar device of expressing the population as the number of "year-persons," or the number of "years of exposure," or, to state it more precisely, perhaps, the number of "years of life observed" within each age category. No age group includes less than 810 such years of observation.

Since our immediate purpose is to indicate the general nature of illness, rather than the incidence of specific diseases, at different ages,

the illnesses have been grouped into only 18 classes, with the exception of tonsillectomies, adenoidectomies, and other operations on the throat or nasal fossae which are shown separately. The scheme of classification used was the International List of Causes of Death, 1920 revision. This list, unsuitable as it is for any scientific classification, because of its illogical combination of anatomical, etiological, pathological, epidemiological, and other bases, is resorted to because it is the only classification generally used. Some departures, dictated by considerations which we believe will be apparent to anyone more interested in the causes of illness than in a mere scheme of classification, were made from it; but in the tables presented, the International List numbers are carried for definitive purposes.

The data so classified are presented in Table 2, together with the "years of life observed" within each age group. In Table 3 are given the annual rates, based upon the figures in Table 2.

Table 2.—Number of illnesses, by age groups, in which a specified disease or condition was the sole or primary cause in a group of white persons observed in Hagerstown, Md., December 1, 1921-March 31, 1924

	Number of illnesses in which the specified disease or condition was the sole or primary cause							
Disease or condition (numbers in parentheses refer to those given in the International List of Causes of Death, 1920)		Age group						
	All ages 1 0-4	5-9	10-14	15-24	25-44	45-64	65+	
Years of life observed	16, 517	1,777	2, 105	1, 713	2, 526	4, 643	2, 575	810
Total illnesses	17, 847	2, 822	3, 270	2, 034	1,871	4, 162	2, 553	875
Epidemic, endemic, and infectious diseases (1-42, except 11 and 31)	1, 448 359	626 6	615 13	86 14	36 20	49 97	25 142	7 59
of 205)	728 123 180	10 13 51	45 30 56	85 25 37	64 10 14	247 24 16	201 14 3	50 5 2
Diseases of circulatory system (87-96)	303	17	16	27	21	60	80	72
31, 97-107, 109)	10, 844	1, 623	1, 901 66	1, 329	1, 244	2, 618	1,500	474
fossæ Diseases of teeth and gums (part of 108)	8 124	2	18	. 30	19	41	13	1
Diseases and disorders of the digestive system (110-127, part of 108 and 205). Diseases of kidney and annexa (128-134) Diseases of genito-urinary system (nonvene-	1, 594 182	271 15	298 11	213 6	148 10	316 44	255 64	76 30
real) (135-142)	183 395	2	1	13 1	39 108	86 273	34	5
part of 205) 3	291	60	79	53	24	46	17	10
(155-158, part of 205)	111	2	5	5	5	47	33	12
163) Senility (164)	19	13	2	3				14
External causes (165-203)	653 168	51 47	96 18	75 15	81 11	150 36	141 26	38 11

Including unknown ages.

d

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Includes rash, hives, and "sores on body."

Table 3.—Illness rates, by age groups, from specified diseases or conditions which were the sole or primary cause in a group of white persons observed in Hagerstown, Md., December 1, 1921–March 31, 1924

metricine eminer we are	Annual rate per 1,000							
Disease or condition (numbers in paren- theses refer to those given in the Inter- national List of Causes of Death, 1920)	All	Age group						
	ages1	0-4	5-9	10-14	15-24	25-44	45-64	65+
Total illnesses	1, 080. 5	1, 588. 2	1, 553. 8	1, 187. 4	740.8	896.4	991.3	1, 079.
Epidemic, endemic, and infectious dis-	10.00			14.1		1.1	1 10	14/10
eases (1–42, except 11 and 31)	87. 7 21. 7	352.3	292.2	50.2 8.2	14.3 7.9	10.6	9.7 55.1	8.
Diseases of the nerveus system (70-84,	41.	0. 2	0.2			20.0	00. 4	12.
part of 205)	44.1	5.6	21.4	49.6	25, 3	53. 2	78.0	72.
Diseases of the eyes and annexa (85)	7.4	7.3	14.3	14.6	4.0	5.2	5.4	6.
Diseases of ears and mastoid process (86)	10.9	28.7	26.6	2.6	5.5	3.4	1.2	2.
Diseases of the circulatory system (87-96).	18.3	9.6	7.6	15.8	8.3	12.9	31.0	88.
Total respiratory (excluding operations) (11, 31, 97-107, 109) Tonsillectomy and (or) adenoidec-	636.5	913.4	903.3	775.8	492.5	563. 9	582. 4	585,
tomy	7.3	7.3	31.4	9.9	5.1	2.2	.4	
. fosse	.5				1.6	.4	.4	
Diseases of teeth and gums (part of 108) Diseases and disorders of the digestive	7.5	1.1	8.6	17. 3	7.5	8.8	5.0	1.
system (110-127, part of 108 and 205)	96.5	152.5	141.6	124.3	58, 6	68. 1	99.0	93.
Diseases of kidney and annexa (128-134)	11.0	8.4	5.2	3.5	4.0	9.5	24.9	37.
Diseases of genito-urinary system (non- venereal) (135-142)	11.1	1.1	. 5	7.6	15. 4	18.5	13.2	6.
venereal) (135–142)	46.4	3. 1		1.2	81.5	110. 2	2.3	0.
Diseases of skin and cellular tissue (151-		*******			01.0	*****		
154, part of 205)	17.6	33.8	37.5	30.9	9.5	9.9	6.6	12.
Diseases of bone and organs of locomotion (155-158, part of 208)	6.7	1.1	2.4	2.9	2.0	10.1	12.8	14.1
Congenital malformations and infancy							-	
(159-163)	1.2	7.3	1.0	1.8				
Senility (164)				******				17.
External causes (165-203)	39. 5	28.7	45. 6	43. 8	32. 1	32.3	54.7	46.
Ill-defined and unknown	10. 2	26.5	8.6	8.8	4.4	7.8	10.1	13.

¹ Including unknown ages.

Table 4.—Relative importance of the various causes of illness at different ages, based on the Hagerstown study

			1 10 00				
Disease or condition	Per cent of total illnesses caused by specified causes and conditions at each age						
	0-4	5-9	10-14	15-24	25-44	45-64	65+
Total	100.00	100.00	100.00	100.00	100,00	100.00	100.00
Bpidemic, endemic, and infectious diseases General diseases	22. 18 . 21 . 35	18. 81 . 40 1. 38	4. 23 . 69 4. 18	1. 92 1. 07 3. 42	1. 18 2. 33 5. 94	0, 96 5, 56 7, 87	0.80 6.74 6.74
Diseases of eye and annexa	1.81	1.71	1. 23 1. 82	. 53	. 58	. 55	. 57
Diseases of circulatory system Diseases of respiratory system excluding operations	57. 51	. 49 58. 13	65, 34	1. 12	62.90	3. 13 58. 75	8. 25 54. 17
Tonsillectomy and (or) adenoidectomy Other operations on throat and nasal fossæ Diseases of teeth and gums	. 46	2.02	1.48	.70 .21 1.02	. 24 . 05 . 99	.04 .04	.11
Diseases and disorders of the digestive system Diseases of kidney and annexa Diseases of genito-urinary system	9, 60	9. 11 .34 .03	10. 47 . 30 . 64	7.91 .53 2.08	7. 59 1. 06 2. 07	9, 99 2, 51 1, 33	8. 68 3. 41
Puerperal state Diseases of skin and cellular tissue	2. 13	2,42	2.61	5.77 1.28	6. 56 1. 11	. 12	1, 14
Diseases of bones and organs of locomotion Congenital malformations and infancy Senility		.15	. 25 . 15	. 27	1. 13	1, 29	1, 37
External causes Ill-defined and unknown	1.81	2,94	3.69	4.33	3. 60 . 87	5. 52	4, 34 1, 26

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The relative importance of the general groups of kinds of causes in different age periods is shown in the percentages given in Table 4. The predominance of respiratory causes, which account for over half of the illnesses in every age period, is the most striking feature of our findings. The relative importance of other groups of causes varies considerably from age to age, so that, comparing one age period with

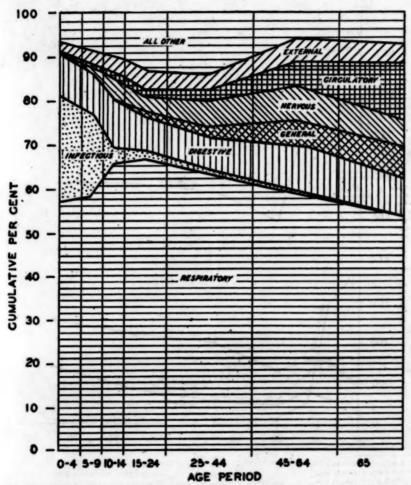


Fig. 1.—The relative importance of the major groups of diseases as causes of illness in different periods of life in a white population group in Hagerstown, Md., Dec. 1, 1921-Mar. 31, 1924. In the diagram the total illness rate at any age is 100 per cent

another, there is a marked difference in the kinds and causes of sickness. In Fig. 1 an attempt has been made to depict these contrasts.

Each period of life is characterized by its own distribution of the causes of illness. In childhood, illness other than respiratory is caused chiefly by communicable diseases, diseases and conditions of the skin, ears, eyes, and teeth, and nervous and digestive disorders; in old age

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illness other than respiratory is caused by the organic group of diseases and conditions—those of the circulatory system, nervous system, and kidneys. Illnesses resulting from all of these causes are at their lowest level in adolescence and young adult ages. The only major cause which results in a higher rate of disability in young adult life than at any other age is the puerperal condition, and this, of course,

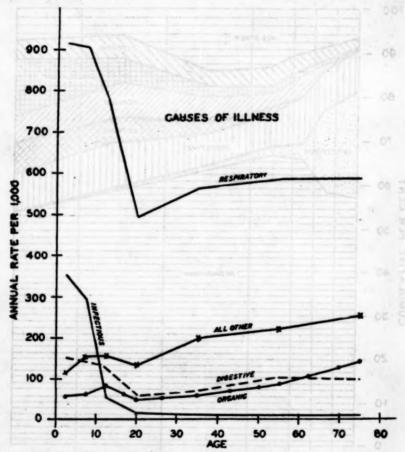


Fig. 2.—Causes of illness at different ages in a white population group in Hagerstown, Md., Dec. 1, 1921-Mar. 31, 1924. Under "infectious" diseases are included the "epidemic, endemic, and infectious diseases," and under "organic" the following: Diseases of the eyes, ears, circulatory system, teeth and gums, kidney, and genito-urinary system

relates to females only. Certain specific causes of illness do have their highest incidence in the young adult period of life, such as venereal diseases, typhoid fever, and pulmonary tuberculosis except under conditions of special strain or hazard. But, by and large, this is the age most free from illness from the great majority of causes.

Since the diagram we have been discussing (fig. 1) exhibits only the relative importance of the causes of illness at different ages, we 1073

have plotted graphs in Figures 2 and 3 to show the actual variations in the illness rates from the major groups of causes. The importance of respiratory diseases and conditions as causes of illness is again emphasized; but their great height in childhood, their lowest level in adolescent and young adult periods (15–24 years), and their gradual rise with the advance of age are quite striking. They characterize illness in both extremes of life more than any other general disease group; although, with the exception of infectious diseases, circulatory

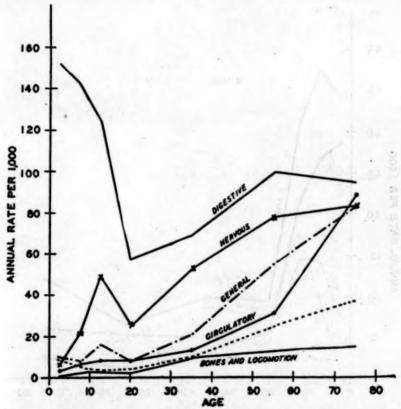


Fig. 3.—Variations, according to age, of certain groups of diseases which were primary causes of illness in a white population group in Hagerstown, Md., Dec. 1, 1921–Mar. 31, 1924. The dotted line represents "diseases of the kidney and annexa."

diseases, and diseases of the bones and of "organs of locomotion"—which so clumsily describes diseases that affect certain muscles—nearly all of the major groups of causes of illness tend to appear among the very young and among the old.

In contrast to the organic troubles which so definitely begin to be manifested in middle life and which characterize old age, are the infections and the diseases and conditions affecting the skin, teeth, eyes, and ears (fig. 4) that occur with greatest frequency in childhood.

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With this general view of the causes of illness at different ages, it is purposed to present in more detail in the next paper the age variations in the incidence of a number of specific diseases and conditions in so far as they were manifested in illness in the Hagerstown group.

ACKNOWLEDGMENTS

The continuous field observations upon which the foregoing report is based were made by the following assistants: F. Ruth Phillips,

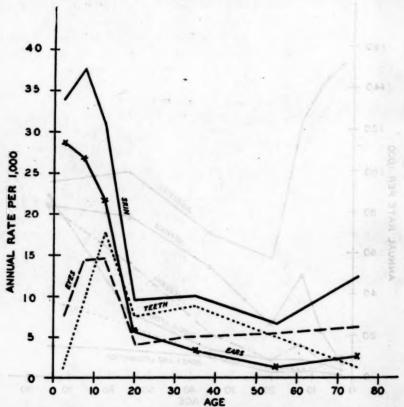


Fig. 4.—Incidence, according to age, of diseases and conditions of the skin, teeth, eyes, and ears in a white population group in Hagerstown, Md., Dec. 1, 1921-Mar. 31, 1924

Mrs. Mary King Phillips, Louise Simmons Mrs. Clara Bell Ledford, Clarice Buhrman, and Mrs. Alcesta Owen, under the immediate supervision of Passed Asst. Surg. R. B. Norment, jr., Acting Asst. Surg. A. S. Gray, and later, Surg. C. V. Akin.

In the analysis of the data I am especially indebted to Miss Phillips and to Associate Statistician S. D. Collins and Assistant Statistician Dorothy G. Wiehl, and other members of the statistical staff, as well as to several officers of the Public Health Service for constant advice on medical points.

WHOLE-TIME COUNTY HEALTH OFFICERS, 1928

The following directory has been compiled from data furnished as of January 1, 1928, by State health officers. Similar directories for the years 1922 to 1927, inclusive, have been published in the Public Health Reports. The directory for 1927 was issued as Reprint No. 1164.

In the questionnaire sent for the purpose of obtaining the necessary information, a "whole-time" county health officer was defined as "one who does not engage in the practice of medicine or in any other business, but devotes all his time to official duties."

Directories of State health departments have been published annually by the Public Health Service for the years 1912 to 1927, inclusive. The directory for 1927 was issued as Reprint No. 1188 from the Public Health Reports.

Directories of city health officers have been published annually for the years 1916 to 1927, inclusive, the directory for 1927 being Reprint No. 1177.

Directories of State and city health officers for 1928 will be published later.

State and county	Name of health officer	Post-office address	Official title
Alabama:		11 11 11 11	
Baldwin	G. C. Marlette, M. D	Bay Minette	County health officer.
Barbour	E. M. Moore, M. D	Clayton	Do.
Calhoun		Anniston	Do.
Chambers		Lafayette	De.
Coffee		Elba	Do.
Colbert		Tuscumbia	Do.
Covington		Andalusia	Do.
Cullman		Cullman	
Dale	W. S. Gilchrist, M. D	Ozark	Do.
Dallas	L. T. Lee, M. D.	Selma	Do.
Elmore	A. H. Graham, M. D	Wetumpka	Do.
Escambia	V. P. Roberts, M. D	Brewton	Do.
Etowah	W. H. Harper, M. D	Gadsden	Do.
Franklin	L. J. Graves, M. D.	Russellville	Do.
Houston	L. R. Poole, M. D.		Do.
Jefferson	J. D. Dowling, M. D.	Dothan	Do.
Lauderdale	W. D. Hubbard, M. D.	Florence	
Lawrence	R. E. Harper, M. D.		Do.
Lee	C. M. Moore, M. D.	Moulton	Do.
Limestone	C. M. Moore, M. D.	Opelika	Do.
	L. R. Murphree, M. D	Athens.	Do.
Madison	W. C. Hatchett, M. D	Huntsville	Do.
Marengo	J. R. Long, M. D	Linden	Do.
Marshall	D. C. Jordan, M. D	Guntersville	Do.
Mobile	C. A. Mohr, M. D	Mobile	Do.
Monroe	T. E. Tucker, M. D	Monroeville	Do.
Montgomery		Montgomery	Do.
Morgan	H. C. McRee, M. D.	Decatur	Do.
Pike	W. H. Abernethy, M. D.	Troy	D 0.
Sumter	J. S. Hough, M. D	Livingston	Do.
Talladega		Talladega	Do.
Tallapoosa	W. E. Wilson, M. D	Dadeville	Do.
Tuscaloosa	A. A. Kirk, M. D	Tuscaloosa	Do.
Walker	A. M. Waldrop, M. D	Jasper	Do.
rizona:			
Cochise	R. B. Durfee, M. D	Bisbee	City and county health officer.
Coconino	G. F. Manning, jr., M. D.	Flagstaff	Do.
Yuma	Harry A. Reese, M. D	Yuma	Do.
rkansas:			
Ashley	M. F. Houston, M. D	Hamburg	Medical director.
Chicot.	W. D. Easterling, M. D.	Lake Village	Do.
Conway	W. H. Bruce, M. D	Morrilton	Do.
Crittenden	J. T. Irby, M. D	Marion	Do.
Cross	J. D. McKie, M. D	Wynne	Do.

State and county	Name of health officer	Post-office address	Official title
Arkansas—Continued.			
Desha	J. C. Miller, M. D. G. W. Jones, M. D. J. F. Merritt, M. D. W. P. Moore, M. D. G. A. Hays, M. D. F. A. Norwood, M. D. A. M. Washburn, M. D. A. J. Dunklin, M. D. W. B. Bruce, M. D. V. T. Webb, M. D. T. F. Ballard, M. D. Gordon Hastings, M. D.	McGehee	Medical director.
Drew	G. W. Jones, M. D	Monticello	Do.
Garland	J. F. Merritt, M. D	Hot Springs	Do.
Jackson	W. P. Moore, M. D	Newport Pine Bluff	Do.
Jefferson	G. A. Hays, M. D	Pine Bluff	Do.
Little River	F. A. Norwood, M. D	Ashdown Blytheville	Do.
Mississippi	A. M. Washburn, M. D	Blytheville	Do.
Monroe	A. J. Dunklin, M. D	Clarendon	Do.
Phillips	W. B. Bruce, M. D	Helena	Do.
Pope	A. B. Tate, M. D	Russellville	Do.
Pulaski	V. T. Webb, M. D	Little Rock	
Saline	T. F. Ballard, M. D	Benton	Do.
Union Woodruff	Gordon Hastings, M. D J. F. Hays, M. D T. J. Pool, M. D	El Dorado	
Woodruff	J. F. Hays, M. D	McCrory	Do.
Yell	T. J. Pool, M. D	Ola	Do.
California:			
Los Angeles	J. L. Pomeroy, M. D R. C. Main, M. D	Los Angeles	County health officer.
Monterey	R. C. Main, M. D	Salinas	Do.
Orange	K. H. Sutherland, M. D.	Santa Ana	Do.
Riverside	W. B. Wells, M. D	Riverside	Do.
San Diego	Alex M. Lesem, M. D	San Diego	Do.
San Joaquin	J. J. Sippy, M. D	Stockton	District health officer.
San Luis Obispo	Allen F. Gillihan, M. D	San Luis Obispo	County health officer.
Santa Barbara	F. G. Crandall, M. D	Santa Barbara	Do.
Yolo			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Colorado:			
Otero	Guy A. Ashbaugh, M. D.	Rocky Ford	Do.
Connecticut:			
Fairfield	Lawrence E. Poole, M. D.	Fairfield	Health officer and school physician.
Florida:	w	electron of the	THE SECTION OF LINE
Polk	W. M. Bevis, M. D J. R. Scully, M. D	Bartow	County health officer.
Manatee	J. R. Scully, M. D	Sarasota	Do.
Sarasota	do	do	Do.
leorgia:	a	3.5711 - 3 111	
Baldwin	S. A. Anderson, M. D.	Milledgeville	Commissioner of health
Bartow	D. H. Monroe, M. D	Cartersville	Do.
Bibb	J. D. Applewhite, M. D.	Macon	Do.
Brooks	R. E. McClure, M. D	Quitman Savannah	Do.
Chatham	V. H. Bassett, M. D	Savannah	Do.
Clarke	B. B. Bagby, M. D	Athens	Do.
Cobb	J. E. Lester, M. D	Marietta	Do.
Coffee	T. H. Johnston, M. D	Douglas	Do.
Colquitt	T. B. Harper, M. D	Moultrie	Do.
Crisp	P. H. Smith, M. D	Cordele	Do.
Decatur	S. A. Anderson, M. D. D. H. Monroe, M. D. J. D. Applewhite, M. D. V. H. Bassett, M. D. J. E. Lester, M. D. J. E. Lester, M. D. T. H. Johnston, M. D. T. B. Harper, M. D. P. H. Smith, M. D. J. R. Evans, Ph. G., M. D. J. R. Evans, Ph. G., M. D. Hugo Robinson, Ph. G., M. D. Hugo Robinson, Ph. G.	Bainbridge	Do.
De Kalb	J. R. Evans, Ph. G., M. D.	Decatur	Do.
Dougherty	Hugo Robinson, Ph. G., M. D. B. V. Elmore, M. D. H. L. Akridge, M. D. C. J. Wellborn, M. D. O. H. Cheek, M. D. G. T. Crozier, M. D. C. O. Rainey, M. D. Victor Roule, M. D. W. C. Humphries, M. D.	Albany	Do.
	M. D.	Local Day of the Control	_
Floyd	B. V. Elmore, M. D	Rome Brunswick	Do.
Glynn	H. L. Akridge, M. D	Brunswick	Do.
Hall	C. J. Wellborn, M. D	Gainesville	Do.
Laurens	O. H. Cheek, M. D	Dublin	Do.
Lowndes	G. T. Crozier, M. D	Valdosta	Do.
Mitchell	C. O. Rainey, M. D	Camilla	Do.
Richmond	Victor Roule, M. D	Augusta	Do.
Spalding	W. C. Humphries, M. D.	Griffin	Do.
Sumter	W. H. Houston, M. D	Americus	Do.
Thomas	J. W. Wallace, M. D	Thomasville	Do.
Troup	S. C. Rutland, M. D	La Grange	Do.
Walker	W. C. Humphries, M. D. W. H. Houston, M. D. J. W. Wallace, M. D. S. C. Rutland, M. D. J. H. Hammond, M. D.	La Fayette	Do.
Ware	G. E. Atwood, M. D	Waycross	Do.
Washington			
llinois:			
Cook	Herbert L. Wright, Ph. G.,	Chicago, 737 South	Director of health.
	M. D., Dr. P. H.	Lincoln.	
· Du Page	W. K. Murray, M. D W. H. Newcomb, M. D	Wheaton	Health officer.
Morgan	W. H. Newcomb, M. D.	Jacksonville	Do.
ansas:			1 2 - 1
Butler	R. J. Cabeen, M. D.	Eldorado	County health officer.
Cherokee	R. J. Cabeen, M. D C. C. Fuller, M. D F. C. Cave, M. D	Columbus	Do.
Ellis	F. C. Cave, M. D.	Hays	Do.
		Junction City	Do.
Greenwood	C. L. Miller M. D.	Eureka	Do.
Tofferson	G D M Lambdin M D		Do.
Jefferson	R. B. Statford, M. D. C. L. Miller, M. D. G. D. M. Lambdin, M. D. J. S. Fulton, M. D. J. H. Saylor, M. D. C. R. Hepler, M. D. F. E. McCord, M. D.	Oskaloosa	Do.
Lyon	I H Sayles M. D.	Emporia	
Marion	C. P. Harles M. D.	Marion	Do.
Ottawa	C. R. Hepler, M. D.	Minneapolis	Do.
Shawnee	F. E. McCord, M. D	Topeka	Do.
chiucky.			
Ballard	G. L. Thompson, M. D	Wickliffe	Director, county healt
			department. Do.
Boyd	R. D. Higgins, M. D Luther Bach, M. D	Ashland	0.5

State and county	Name of health officer	Post-office address	Official title
Kentucky-Continued.			Comment of the last
Carlisle	R. K. Galloway, M. D	Bardwell	Director, county healt
	C T C N D	0	department.
Carter	G. E. Cecil, M. D.	Grayson	Do.
Daviess	R. M. Hathaway, M. D.	Owensboro	Do. Do.
Elliott	P. L. Hawk, M. D	Sandy Hook	Do. Do.
Estill	J. W. Miller, M. D F. P. Allen, M. D	Irvine	Do.
Fayette	Creat Pice M. D.	Lexington Prestonsburg	Do.
Floyd.	Grant Rice, M. D.	Hickman	Do.
FultonHenderson	Hugh E. Prather, M. D F. C. Campbell, M. D	Henderson	Do.
Hickman	Charles Hunt, M. D. M. E. Loftus, M. D. C. F. Holtegel, M. D. J. W. Duke, M. D. W. L. Orr, M. D.	Clinton	Do.
Hopkins	M F Loftne M D	Madisonville	Do.
Johnson	C F Holtegel M D	Paintsville	Do.
Knott.	I W Duke M. D	Hindman	Do.
Lawrence	W. L. Orr. M. D.	Louisa	Do.
Lee	Edwin Cameron, M. D	Beattyville	
Leslie	Daniel V. Sublett, M. D.	Hyden	Do.
Letcher	R. W. May, M. D. T. F. Long, M. D. Wm. N. Keith, M. D.	Whitesburg	
Magoffin	T. F. Long, M. D.	Salyersville	Do.
Martin	Wm. N. Keith, M. D.	Inez	Do.
Mason		Maysville	Do.
McLean	J. S. Fitzhugh, M. D.	Calhoun	Do.
Menifee	E. T. Riley, M. D	Frenchburg	Do.
Morgan	J. S. Fitzhugh, M. D. J. S. Fitzhugh, M. D. E. T. Riley, M. D. W. H. Wheeler, M. D. O. M. Goodloe, M. D. J. W. Davis, M. D.	West Liberty	Do.
Owsley	O. M. Goodlee, M. D.	Boonville	Do.
Perry	J. W. Davis, M. D	Hazard	Do.
Pike			
Scott	A. Stewart, M. D	Georgetown	Do.
Webster	Roy Orshurn M. D.	Dixon	Do.
Wolfe	Roy Orsburn, M. D J. L. Cox, M. D	Campton	Do.
ouisiana: 1	J. 13. COA, Mr. D	Cumpion	20.
Assumption	T. G. Scott, M. D	Napoleonville	Director of health,
Avoyelles	C. W. Strowger, M. D., C. P. H. W. J. Sandidge, M. D. W. R. King, M. D. J. R. Carter, M. D. R. C. Farrier, M. D. R. H. Allen, M. D. R. A. Tharp, M. D.	Marksville	Do.
Caddo	W. J. Sandidge, M. D	Shreveport	Do.
Caldwell	W. R. King, M. D	Columbia	Do.
Catahoula	J. R. Carter, M. D.	Harrisonburg	Do.
Claiborne	R. C. Farrier, M. D.	Homer	Do.
Concordia	R. H. Allen, M. D.	Vidalia	Do.
De Soto	R. A. Tharp, M. D.	Mansfield	Do.
East Carroll	Ter it was by mer as a course	Lake Providence	Do.
Franklin	N. C. Berry, M. D.	Winnsboro	Do.
Iberia	R. M. Primer, M. D	New Iberia	Do.
Lafayette	D. C. Johnson, M. D	Lafayette	Do.
Lafourche	H. S. Smith, M. D	Thibodaux	Do.
La Salle	J. M. Kittrell, M. D.	Jens.	Do.
Madison	I. D Craig M D	Tallulah	Do.
Morehouse	J. W. Williams, M. D	Bastrop	Do.
Natchitoches	J. W. Williams, M. D. W. W. Knipmeyer, M. D.	Natchitoches	Do.
Ouachita	E. C. Edwards, M. D	Monroe	Do.
Plaquemines			
Rapides	E. Klamke, M. D.	Alexandria	Do.
Richland	L. Treadway	Rayville	Do.
St. Martin	R. J. Gillespie, M. D	St. Martinsville	Do.
St. Mary	F. E. Evans, M. D	Franklin	Do.
Tangipahoa	B. L. Stinson, M. D	Amite	Do.
Tensas	N. P. Liles, M. D	St. Joseph	Do.
Washington	John Schreiber, M. D	Franklinton	Do.
Webster	E. B. Godfrey, M. D C. H. Tennet, M. D	Minden	Do.
West Carroll	C. H. Tennet, M. D.	Oak Grove	De.
Maine: 2		7. 12	
Motboy Union	H. L. Jackson, M. D	Old Town	
Rumford	Thos. S. Burr. M. D	Rumford	
Sanford	Thos. S. Burr, M. D W. H. Kelly, M. D	Sanford	
Vassalboro	A. R. Daviau, M. D	Vassalboro	
Maryland: Allegany	C. C. McCulloch, M. D.	Cumberland	Deputy State health offi
	The second secon		cer.
Baltimore	J. S. Bowen, M. D.	Towson	Do.
Calvert	I. N. King, M. D.	Prince Frederick	Do.
Carroll	W. C. Stone, M. D.	Westminster	Do.
Frederick	J. S. Bowen, M. D. I. N. King, M. D. W. C. Stone, M. D. E. C. Kefauver, M. D. W. T. Pratt, M. D. W. S. Keister, M. D. C. A. Kane, M. D.	Frederick	Do.
Montgomery	W. T. Pratt. M. D.	Rockville	Do.
Prince Georges	W. S. Keister, M. D.	Upper Marlboro	Do.
	C A Kane M D	Easton	Do.
Talhot			
Talbot	C. H. Aimin, Int. December		
Tassachusetts.		Hyannis	County health officer.
Talbot	A. P. Goff, M. D	Hyannis	County health officer.

State and county	Name of health officer	Post-office address	Official title
Mississippi:			
Bolivar	R. D. Dedwylder, M. D	Cleveland	Director of health.
Clarke	J. T. Googe, M. D	Quitman Clarksdale	Do.
Coahoma	D. V. Galloway, M. D	Clarksdale	Do.
Forrest	W. D. Beacham, M. D	Hattiesburg	Do. Do.
Hancock	C. M. Shipp, M. D.	Bay St. Louis	Do.
Harrison	D. J. Williams, M. D	Jackson	Do.
Hinds	B D Blockwolder M D	Lexington	
HolmesHumphreys	Poul & Carley M D	Belzoni	Do.
Issaquena	D. S. Johnson, M. D.	Mayersville	Do.
Jackson	R. G. Lander, M. D.	Pascagoula	Do.
Jones	W. B. Harrison, M. D	Laurel	Do.
Lamar	C. H. Love, M. D	Purvis	Do.
Lee	C. St. C. Guild, M. D	Tupelo	Do.
LeflorePearl River	C. P. Coogle, M. D.	Greenwood	Do. Do.
4 _	R. D. Dedwylder, M. D. J. T. Googe, M. D. D. V. Galloway, M. D. W. D. Beacham, M. D. C. M. Shipp, M. D. D. J. Williams, M. D. W. E. Noblin, M. D. B. D. Blackwelder, M. D. Paul S. Carley, M. D. D. S. Johnson, M. D. R. G. Lander, M. D. W. B. Harrison, M. D. C. H. Love, M. D. C. St. C. Guild, M. D. C. P. Coogle, M. D. John W. Shackelford, M. D. B. T. Robinson, M. D.	Poplarville	
Perry	B. T. Robinson, M. D	New Augusta Rolling Fork	Do. Do.
Sharkey	A. K. Barrier, M. D.	Indianola	Do. Do.
Sunflower	T. Peul Henry is M. D.		Do.
Tishomingo Union	A. K. Barrier, M. D. M. C. Balfour, M. D. T. Paul Henry, jr., M. D. C. M. Roberts, M. D.	New Albany	Do.
Warran	(Acting). F. M. Smith, M. D	Vicksburg	Do.
Warren Washington	A. J. Ware, M. D.	Greenville	Do.
Yazoo	A. J. Ware, M. D W. W. Nesbit, M. D	Yazoo City	Do.
Missouri:		Calumbia	County bealth officer
Boone	Finis Suggett, M. D	Columbia	County health officer.
Dunklin	E. L. Spence, M. D J. W. Williams, jr., M. D.	Kennett	Do. Do.
Greene	J. W. Williams, Jr., M. D.	Springheid	
Jackson	J. T. Brennan, M. D	Independence	Health Commissioner.
Marion	E. M. Lucke, M. D	Hannibal	County health officer.
Mississippi	J. R. Lee, M. D	Charleston	Do.
New Madrid	J. R. Lee, M. D. Wm. N. O'Bannon, M. D.	New Madrid	Do.
Nodaway	C. P. Fryer, M. D., D. P. H.	Maryville	Do.
Pemiscot	W. S. Petty, M. D	Caruthersville	Do.
Pettis		D	D.
Scott	U. P. Haw, M. D	Benton	Do.
St. Francois	W. W. Johnston, M. D	Flat River	Do. Health Commissioner.
St. Louis	A. E. Walters, M. D	Clay toll	Health Commissioner.
Cascade	Thos. F. Walker, M. D	Great Falls	County health officer.
Lewis and Clark	Arthur Jordan, M. D	Helena	Do.
Missoula	F. D. Pease, M. D	Missoula	Do.
New Mexico:			100
Bernalillo	J. S. Scott, M. D	Albuquerque	Do.
Chaves		Roswell	Do.
Dona Ana	C. W. Gerber, M. D. O. E. Puckett, M. D. H. P. Mera, M. D. C. H. Douthirt, M. D. P. H. McNellis, M. D.	Las Cruces	Do.
Eddy	O. E. Puckett, M. D	Carlsbad	De.
Santa Fe	H. P. Mera, M. D.	Santa Fe	Do. Do.
Union	C. H. Doutnirt, M. D	Clayton	Do.
Valencia	P. H. McNellis, M. D	Los Lunas	100.
New York: Cattaraugus	R. M. Atwater, M. D., D. P. H.	Olean	Acting County health
North Carolina:	THE PARTY OF THE P	C. Marine Value of	
Beaufort	John W. Williams, M. D. J. E. Smith, M. D.	Washington	County health officer.
Bertie	J. E. Smith, M. D	Windsor	Do.
Bladen Brunswick	D C Cromortia M D	Elizabethtown	Do.
Brunswick	R. E. Broadway, M. D G. A. Morgan, M. D D. G. Caldwell, M. D T. C. Britt, M. D	SouthportAsheville	Do.
Buncombe	G. A. Morgan, M. D.	Asneville	Do. Do.
Cabarrus	D. G. Caldwell, M. D	Concord	Do.
Carteret	Flord Johnson M. D.	Beaufort	Do.
Columbus	Floyd Johnson, M. D D. E. Ford, M. D	New Bern	Do.
Craven	I W McNeill M D	Fayetteville	Do.
Davidson	J. W. McNeill, M. D G. C. Gambrell, M. D	Lexington	Do.
Durham	I H Ennerson M D	Durham	Do.
Edgecombe	A. C. Norfleet, M. D	Tarboro	Do.
Forsyth	A. C. Norfleet, M. D J. R. Hege, M. D	Winston-Salem	Do.
Granville	J. A. Morris, M. D.	Oxford	Do.
Guilford		Greensboro	Do.
Halifax	Z. P. Mitchell, M. D. J. H. Woodcock, M. D. C. C. Massey, M. D. R. S. McGeachy, M. D. W. A. McPhaul, M. D.	Weldon	Do.
Henderson	J. H. Woodcock, M. D	Hendersonville	Do.
Johnston	C. C. Massey, M. D.	Smithfield	Do.
Lenoir.	R. S. McGeachy, M. D	Kinston	Do. Do.
Mecklenburg	G. F. Reeves, M. D	Nashville	Do.
Nash New Hanover	John H. Hamilton M. D.	Wilmington	Do.
Tiem Hanover	John H. Hamilton, M. D. M. H. Seawell, M. D	Jackson	Do.
Northampton			

State and county	Name of health officer	Post-office address	Official title
North Carolina-Contd.			
Pitt	W. E. Futrell, M. D	Greenville	County health officer.
Richmond	A. B. McCreary, M. D	Rockingham	Do.
Robeson	E. R. McHardin, M. D	Lumberton	
Rowan	C. W Armstrong M. D.	Salisbury	Do.
Rutherford	C. W. Armstrong, M. D J. C. Twitty, M. D	Rutherfordton	Do.
Sampson		Clinton	
Sampson	G U Summer M D	Mount Airy	Do.
Surry	F D Harris M D	Henderson	Do.
Vance	A C Pulle M T)	Raleigh	Do.
Wake Wayne	I. W Corbett M D	Goldsboro	Do.
	T. W. Corbett, M. D	Willback and	
Wilkes	T. T. Comittee, M. D.	Wilkesboro	Do.
Wilson	G. H. Sumner, M. D. F. R. Harris, M. D. A. C. Bulla, M. D. L. W. Corbett, M. D. J. W. White, M. D. L. J. Smith, M. D.	Wilson	Do.
Ohio: Allen	J. J. Sutter, M. D	Lima	District health commis
Ashtohodo	W C Walso M D	Tofferson	
Ashtabula	E D Daw M. D	Jefferson	Do.
Belmont	C. I. Deld-idea M. D.	M. Clairsville	Do.
Butler	C. J. Buidridge, M. D	Hamilton	Do.
Claremont	F. A. Ireton, M. D.	Batavia	Do.
Clinton	W. S. Weiss, M. D. F. R. Dew, M. D. C. J. Baldridge, M. D. F. A. Ireton, M. D. W. K. Ruble, M. D.	Wilmington	City and county health officer.
Columbiana	T. T. Church, M. D.	Lisbon	Do.
Coshocton	D. M. Criswell, M. D	Coshocton	Do.
Crawford	D. M. Criswell, M. D G. T. Wasson, M. D	Bucyrus	District health commis sioner.
Cuyahoga	Robert Lockhart, M. D	Cleveland	City and county health officer.
Delaware	Milford E. Barnes, M. D B. B. Barber, M. D	Greenville	Do. District health commis
Erie	F. M. Houghtaling, M. D.	Sandusky	sioner. City and county health officer.
Fayette	James F. Wilson, M. D	Washington Court House.	Do.
Franklin	P. B. Wiltberger, M. D	Columbus	District health commis- sioner.
Geauga	Walter Corey, M. D C. A. Neel, M. D	Chardon	Do.
Hamilton	C. A. Neal, M. D	Cincinnati	De.
Hancock	S. F. Whisler, M. D	Findlay	Do.
Hocking	E. R. Hiatt, M. D	Logan	City and county health officer.
Huron	B. C. Pilkey, M. D	Norwalk	District health commis- sioner.
Jefferson	J. P. Young, M. D	Steubenville	Do.
Lake	Walter Corey, M. D	Painesville	Do.
Lorsin	C. D. Barrett, M. D.	Oberlin	Do.
Luens	F. F. DeVore, M. D.	Toledo	Do.
Mahoning	J. F. Elder, M. D	Youngstown	Do.
Marion.	F. F. DeVore, M. D. J. F. Elder, M. D. N. Sifritt, M. D.	Marion	Do.
Meigs.	Inna Nya Gilliford M D	Pomeroy	Do.
Mercer	P P Aware M D		Do.
Miami	Jane Nye Gilliford, M. D. F. E. Ayers, M. D. P. J. Crawford, M. D.	Celina	City and county health
Montgomery	H. H. Pansing, M. D	Dayton	officer. District health commissioner.
Morrow	R. L. Pierce, M. D.	Mount Gilead	Do.
Muskingum	R. L. Pierce, M. D J. M. O'Neal, M. D	Zanesville	Do.
Perry	E I Cambia M D	Now Lorington	Do.
Preble	F. J. Crosbie, M. D H. Z. Silver, M. D	New Lexington	Do.
Richland	Charles L. Shaver, M. D.	Mansfield	City and county health officer.
RossSandusky	R. E. Bower, M. D O. H. Thomas, M. D	ChillicotheFremont	Do. District health commis-
Scioto	R. W. DeCrow, M. D	Wheelersburg	Do.
Seneca	J. J. Heaton, M. D	Tiffin	Do.
Shelby	B. S. Stephenson, M. D	Sidney	City and county health
Stark	Chester M. Peters, M. D.	Canton	officer. District health commis-
Summit	R. H. Markwith, M. D	Akron	sioner. City and county health
Trumbull	L. A. Connell, M. D	Warren	officer. District health commissioner.
	J. Blickensderfer, M. D	New Philadelphia	City and county health officer.
	Alfred G. Sturgiss, M. D.	Marietta	District health commis- sioner.
Wayne	W. G. Rhoten, M. D	Wooster	City and county health officer.

State and county	Name of health officer	Post-office address	Official title
Oklahoma:			
Carter	John L. Dorough, M. D.	Ardmore	County superintende of health.
Kay	David M. Cowgill, M. D	Newkirk	Do.
Leflore	W. F. Lunsford, M. D	Poteau	Do.
McCurtain	R. D. Williams, M. D	Idabel	Do.
Muskogee	CPH	Muskogee	Do.
Okmulgee	J. O. Wails, M. D	Okmulgee	Do.
Ottawa	Fred P. Helm, M. D	Miami	Do.
Pittsburg	J. O. Wails, M. D Fred P. Helm, M. D Chas. M. Pearce, M. D George Hunter, M. D	McAlester	Do. Do.
Oregon:			County health officer
Clackamas	P M Droke M D	Coquille	Do.
Douglas	T. W. Laraway, M. D	Roseburg	Do.
Jackson	L. D. Inskeep, M. D	Medford	Do.
Klamath	G. S. Newsom, M. D	Klamath Falls	Do.
Marion	Vernon Douglas, M. D	Salem	Do.
Multnomah	W. H. Miller, M. D. P. M. Drake, M. D. T. W. Laraway, M. D. L. D. Inskeep, M. D. G. S. Newsom, M. D. Vernon Douglas, M. D. H. R. Cliff, M. D.	Portland	Do.
South Carolina: Aiken	W. G. Bodie, M. D. E. E. Epting, M. D. H. B. Senn, M. D. Leon Banov, M. D. P. H. Smith, M. D. A. B. Hooton, M. D. C. C. Freed, M. D. H. T. Kennedy, M. D. Clem Ham, M. D. Bayliss Earle, M. D. Robert D. Hill, M. D.	Aiken	Do.
Anderson	E. E. Epting, M. D.	Anderson	Do.
Beaufort	H. B. Senn, M. D	Beaufort	Do.
Charleston	Leon Banov, M. D	Charleston	Do.
Cherokee	P. H. Smith, M. D	Gaffney	Do.
Darlington	A. B. Hooton, M. D	Darlington	Do.
Dillon	U. C. Freed, M. D.	Dillon	Do. Do.
Fairfield	Clam Ham M D	Georgetown	Do.
Greenville	Bayliss Earle, M. D.	Greenville	Do.
Greenwood	Robert D. Hill, M. D	Greenwood	Do.
Horry	G. S. T. Peeples, M. D R. L. Martin, M. D	Conway	Do.
Marion	R. L. Martin, M. D.	Marion	Do.
Newberry	H. G. Callison, M. D	Newberry	Do.
Orangeburg	H. G. Callison, M. D G. C. Bolin, M. D L. L. Williams, M. D	Orangeburg	Do. Do.
Spartanburg South Dakota:	Control of Publication	the state of the s	
Pennington	A. N. Crain, M. D	Rapid City	Do.
Blount	K. A. Bryant, M. D	Maryville	Director of health.
Bradley	H. M. Roberson, M. D	Cleveland	County health officer.
Davidson	J. J. Lentz, M. D	Nashville	Do.
DyerGibson	Owen F. Agee, M. D F. L. Roberts, M. D	Dyersburg	Do. Do.
Hamilton	I C Eldridge M D	Chattanooga	Do.
Lake	James P. Moon, M. D	Tiptonville	Director of health.
Lauderdale	James P. Moon, M. D John E. Cunning, M. D F. J. Malone, M. D	Ripley	County health officer.
Montgomery	F. J. Malone, M. D.	Clarksville	Do.
Obion	C. B. A. Turner, M. D	Union City	Do.
RoaneRutherford	J. C. Fly, M. D. H. S. Mustard, M. D. C. S. Kinzer, M. D.	Kingston	Do. Do.
Sevier	C S Kinzer M D	Sevierville	Director of health.
Shelby	L. M. Graves, M. D.	Sevierville	County health officer.
Shelby Washington	S. S. Moody, M. D	Jonesboro	Director of health.
Weakley	L. M. Graves, M. D. S. S. Moody, M. D. M. D. Ingram, M. D. W. C. Williams, M. D.	Dresden	County health officer.
exas:		Franklin	Do.
Cameron	Ernest W. Prothro, M. D.	San Benito	Do.
Hidalgo	J. R. Mahone, M. D.	Edinburg	Do.
McLennan	Ernest W. Prothro, M. D. J. R. Mahone, M. D. R. McCormick, M. D. F. P. Smith, M. D.	WacoFort Worth	Do.
Tarrant	F. F. Smith, M. D	Fort worth	Do.
Box Elder	R. H. Wilson, M. D	Brigham City	Do.
Davis	Sumner Gleason, M. D	Kaysville	Do.
Summit	R. O. Johnson, M. D.	Park City	District health officer.
Utah	L. L. Cullimore, M. D R. O. Johnson, M. D	Provo	County health officer.
Wasatch	R. O. Johnson, M. D	Park City	District health officer.
Accomac	F.J. Wampler, M. D	Accomac	County health officer.
Albemarle	G. B. Young, M. D	Charlottesville	Do.
Arlington	G. B. Young, M. D P. M. Chichester, M. D H. M. Wallace, M. D E. L. McQuade, M. D	Clarendon	Do.
Augusta	H. M. Wallace, M. D	Staunton	Do.
Brunswick	E. L. McQuade, M. D	Laurenceville	Do.
Halifax Henrico		South Boston	Do.
Isle of Wight	J. B. Woods, M. D.	Smithfield	Do. Do.
Nansemond		Suffolk	Do.
Norfolk	1. C. Riggin, M. D	Portsmouth	Do.
Northampton	F. J. Wampler, M. D.	Accomac	Do.
Princess Anne	I. C. Riggin, M. D.	Portsmouth	Do.
	R. P. Cooke, M. D	Lexington	Do.

State and county	Name of health officer	Post-office address	Official title	
Washington:			uli wil su	
Chelan	Paul West, M. D	Wenatchee	County health officer	
King	C. L. Dixon, M. D	Seattle	Do.	
Snohomish	H. M. Berge, M. D	Everett	Do.	
Spokane	W. M. Newman, M. D.	Spokane	Do.	
Walla Walla	Geo. H. T. Sparling, M. D.		Do.	
Whitman	R. J. Skaife, M. D	Colfax	Do.	
Yakima	H. Storgaard, M. D	Yakima	Do.	
West Virginia:			111111111111111111111111111111111111111	
Berkeley	W. Ross Cameron, M. D.	Martinsburg	Do.	
Boone	G. W. Luckey, M. D	Madison	Do.	
Brooke	W. J. McDonald, M. D	Wellsburg	Do.	
Gilmer	A. L. Oilar, M. D	Glenville	Do.	
Hancock	A. E. McClure, M. D	New Cumberland	Do.	
Harrison	V. A. Selby, M. D., D. P.	Clarksburg	Do.	
***************************************	H.			
Kanawha	John Thames, M. D	Charleston	Do.	
Lewis	H. B. Neagle, M. D	Weston	Do.	
Logan	P. B. Wingfield, M. D	Logan.	Do.	
Marion	H. M. Batson, M. D	Fairmont	Do.	
Marshail	J. H. McCall, M. D	Moundsville	Do.	
Ohio	W. H. McLain, M. D	Wheeling	Do.	
Preston	L. H. Lewis, M. D	Kingwood	Do.	
Wood	T. R. Meyer, M. D	Parkersburg	Do.	
Vyoming:		/	Park and the second	
Natrona.	H. Garst, M. D	Casper	Director of health.	

UNIVERSITY OF MICHIGAN SUMMER COURSES IN PUBLIC HEALTH

The University of Michigan offers two groups of courses in hygiene and public health during the coming summer session, which is to be held this year from June 25 to August 3.

The public health training courses will include the following subjects:

- (a) General hygiene and public health.
- (b) Child hygiene.
- (c) School hygiene.
 - (d) Methods and materials in health education.
 - (e) Communicable diseases and epidemiology.
 - (f) Nutrition.
- (g) Public health nursing.
- (h) Mental hygiene and psychiatry.
- (i) Vital statistics.
- (j) Tuberculosis.
- (k) Organization and administration of health education.

Many other courses will be offered which will be of interest and value to public health workers. These will include biology, chemistry, bacteriology, sociology, education, psychology, and medicine.

The course in tuberculosis should prove to be of particular interest to all persons engaged in antituberculosis work. The nursing, medicosocial, and community aspects of tuberculosis will be considered. The course will be conducted by several of our leading specialists in tuberculosis.

In addition to the above, a special Public Health Institute will be conducted on Friday and Saturday of each week during the summer May 4, 1928 1082

session. This institute is arranged primarily for those who are engaged in public health activities and find it impossible to leave their work for the six weeks of the regular summer session, but can arrange to get away from their labors for two days each week. It consists of six class periods on each Friday and Saturday for six weeks—making a total of 72 class periods. The class periods are arranged to cover the various fields of public health.

PUBLIC HEALTH ENGINEERING ABSTRACTS

First Principles in Sewage Disposal. F. C. Temple. The Surveyor, vol. 73, No. 1883, February 24, 1928, p. 259. (Abstract by H. W. Streeter.)

A reply to discussions of Mr. Temple's paper, presented at the Public Works, Roads, and Transport Congress at London in November, 1927. Mr. Temple points out the differences existing in the conditions affecting the operation of storm-water tanks in tropical countries, as compared with more temperate climates. In the former case, tanks may be made smaller, but must be filled with clean water between rainy periods in order to provide sufficient capacity for extremely heavy flushings of solid matter accompanying the first tropical rains following long droughts. As regards damage caused by trade wastes, he draws a parallel to aerial nuisances, which are controlled by law. He discusses the standardization of terms defining the relative strength of sewage, noting that an Indian "strong" sewage is stronger than any British sewage, which, in turn, is stronger than American sewage.

Methods Used by Oil Company Stop Pollution of Streams. Charles W. Geiger. Water Works Engineering, vol. 81, No. 2, January 18, 1928, p. 90. (Abstract by Frank Raab.)

At the El Segundo refinery, the Standard Oil Co. of California pumps about 20,000,000 gallons of salt water daily from the ocean. The water is used for cooling purposes in the refining of oil. In its way through the refinery the water picks up a certain amount of oil from leaks, spills, etc. The oil is about one-tenth of 1 per cent of the volume of water used. This oil is removed from the water before the latter is returned to the ocean. The article describes the method used in separating the oil and water by passing it through a tank or series of tanks or compartments and over skimming baffles in an action which keeps the water and oil moving toward the surface, thus assisting and accelerating the movement of the oil to the surface where it is pumped off. The above plant removes all traces of oil from the water.

Deep-Pit Sludge Digestion at Indianapolis Sewage Works. C. K. Calvert. Engineering News-Record, vol. 100, No. 6, February 9, 1928, pp. 230-231. (Abstract by C. H. Kibbey.)

Sludge containing 7.72 and 1.12 per cent solids, respectively, is pumped to digestion pits. Pits are about 300 feet square, with a depth of 7 to 10 feet. The nature of the soil beneath the pits permits water to escape to such extent that it is only occasionally necessary to remove any quantity of free water, although skimming boxes are provided for the removal of liquor at any depth.

No chemical or temperature control is provided. A pit receives sludge until it is full, and the flow is then diverted to another pit until the level of the sludge in the first pit is lowered by filtration into the ground. This brings about a series of intermittent fillings and effects some seeding. During filling periods, pits become more acid, especially in cold water.

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Primary sludge enters the pit at a pH of about 6.8 and the activated sludge at 7.3. Under normal filling conditions the mixed sludge seldom drops during digestion below 6.8, and, on standing, without the addition of fresh sludge, goes to 7.8 and 8 in a short time. Above figures indicate conditions under which digestion usually takes place, but hard and fast reaction and time figures can not be given. Relative amounts of fresh and digested sludge and the temperature govern the rate of reaction change.

A tabulation showing figures obtained in taking stock of sludge in the various pits is given. The large reduction in volume is attributed to the nature of the soil underlying the pits and the extent of digestion of solids to the long period of time involved, although the method of filling produces a mixture of some very old and some very fresh sludge in each pit. The mixture has never drained to less than 80 per cent of moisture, and for the most part a moisture content of about 85 per cent obtains.

The author believes that, as the proportion of activated sludge increases, satisfactory draining becomes more difficult and that drying beds will be required to put sludge in a condition to be handled. The present use of sludge by growers has not solved the problem of disposal, but its use may be developed and extended as growers become familiar with its advantages.

Water Supply, Sewage Treatment, and Refuse Disposal in 1927. H. B. Cleveland. Public Works, vol. 59, No. 1 January, 1928, pp. 14-18. (Abstract by R. J. Faust.)

Sewage treatment.—The year 1927 has marked a decided increase in interest on the part of the general public in sewage treatment in eliminating stream pollution. This resulted in the enactment of State laws providing for joint sewer districts, for assessment of sewage-disposal costs as a utility, and for legislative and departmental investigation of stream pollution problems.

Major plants completed, under construction, or planned are as follows: North Side, West Side, and Southwest Side plants at Chicago; a \$20,000,000 Imhoff tank plant for Detroit has been recommended and approved; a Metropolitan Drainage Commission has been appointed to work out plans for joint sewage treatment for St. Paul and Minneapolis. An increasing favor toward separate sludge digestion is noted for smaller plants.

The principal studies on research on which conclusions were reached are as follows: (1) Hydrogen sulphide production, with particular reference to the effects of unfiltered sea water; (2) the effect of comparatively small amounts of chlorides (as found in sea water) is slight; (3) sewage screenings contain comparatively large quantities of carbonaceous materials, but may be digested rapidly under proper conditions; (4) all fats may eventually be digested, but not necessarily within economic limits; (5) at the optimum temperature of 80° F., the permissible daily addition of fresh solids to ripe sludge may be increased to 3.25 per cent, as against 2 per cent at 70° F.; (6) The average time of digestion in separate sludge digestion taken at Plainfield, N. J., was 40 days at a temperature of 67°-68° F., average pH value was 7.3; (7) more than 75 substances were tried as possible filter fly controls, but none proved satisfactory.

Treatment of London Sewage. Anon. The Surveyor, vol. 73, No. 1883, February 24, 1928, p. 271. (Abstract by H. W. Streeter.)

The London County Council Main Drainage Committee have submitted proposals for the installation at the northern outfall works, at Barking, of a plant for the treatment of sewage by the activated sludge process, estimated to cost about \$1,250,000. The plant is intended to deal with 5 to 10 m. g. d. out of a total of 258 m. g. d. After experience of the proposed installation, further works are contemplated. The average daily quantity of effluent discharged from the

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northern outfall is 164 m. g. d., and from the southern outfall, 94 m. g. d. Dilution is provided mainly by the Thames and its tributaries, only a small volume of tidal waters being considered as available for this purpose. Other effects of the tide are, however, favorable, including (a) the spreading of polluted water over a long stretch of purer water, (b) facilitation of atmospheric reaeration of the water caused by its movement, and (c) the prevention of formation of permanent undisturbed fermenting mud banks. Further natural factors modifying aeration are area of water surface, depth, temperature, air humidity, salinity, wind, etc.

Investigation and Research. Anon. Thirteenth Annual Report of the Bureau of Sewage Disposal, City of Schenectady, New York, 1927, pp. 9-10. (Abstract

by W. L. Havens.)

During the winter of 1926-27 an investigation was carried out to ascertain the effect of chlorination of the raw sewage, prior to settling-tank treatment. Chlorine was added at rates varying from 6 to 2 p. p. m., with the result that no residual chlorine was found in the tanks during the study. No bacterial reduction in the tank effluent was obtained and no deleterious effect was produced by gas treatment. Odor conditions were excellent about the plant during the entire summer; and during cooler weather, rates of application of about 1 p. p. m. produced the desired results. Liming of the Imhoff tanks was practiced, with the intention of starting pH control. In addition, a river survey was begun in order to determine the necessity of formulating plans for the treatment of the balance of the sewage flow of the city which is now entering the river untreated.

Rivers Pollution Prevention Work of the West Riding Board. Anon. The Surveyor, vol. 73, No. 1883, February 24, 1928, p. 260. (Abstract by H. W.

Streeter.)

The remarkable improvement effected during the past 30 years in the condition of streams in the West Riding of Yorkshire as the result of the work of the West Riding Rivers Board is demonstrated in a special report by the Board's chief inspector, Dr. H. M. Wilson.

The streams, with tributaries, under survey of the board had a total length of over 2,000 miles, including some clean rivers, and others in various states of pollution. There are now 427 sewage works in the board's area, as compared with 167 in 1896. Many works, however, have been abolished, with the process of

concentration still going on.

Only those who remember the condition of the streams 20 or 30 years ago, concludes Doctor Wilson, and those who realize the great addition to the total volume of sewage since then, could have any conception of the foul state in which the streams would have been at present had it not been for the work of the board. Pollution of the cleaner streams has been dealt with at an early stage, preventing deterioration already begun.

The Ozone Fallacy in Garage Ventilation. Carroll M. Salls. Journal of Industrial Hygiene, vol. 9, No. 12, December, 1927, pp. 503-511. (Abstract by

Leonard Greenburg.)

Doctor Salls presents a discussion of the literature concerned with the reaction of carbon monoxide and ozone, and from this discussion one must conclude that there is great variance in the literature concerned with this reaction.

The experimental studies presented are analyses of the atmosphere from a gassing chamber in which carbon monoxide is mixed with ozone at room temperature. The atmosphere was sampled from the beginning of the mixture of the gases through a period 140 minutes thereafter. The carbon monoxide determinations were made by means of the Sayers-Yant method, using defibrinated steer's blood as a blood reagent. Three samples of the atmosphere were obtained prior to starting the ozonator, the three samples yielding the following results in chronological order: 13, 9, and 7 parts of carbon monoxide. After allowing the ozonator to

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operate for about 20 minutes a sample was taken which yielded somewhat less than 5 parts of carbon monoxide. Subsequent samples were taken to the end of 140 minutes. When these samples were plotted against time, they fell on a fairly uniform curve which appears to be the curve of absorption of gas by the chamber walls and leakage through them. The starting of the ozonator appears to have altered the shape of the curve in no way.

Doctor Salls concludes that this study indicated no evidence of an appreciable

action of the ozone on the carbon monoxide.

Preventing Excessive Smoke. J. F. Bjorkholm. Railway Age, vol. 84, No. 6, February 11, 1928, pp. 357-359. (Abstract by Leonard Greenburg.)

One of the most important discriminations in the field of smoke abatement, so far as railroading is concerned, is the differentiation between smoke prevention and "smoke painting" or whitewashing. The latter is merely a method of decoloring smoke by means of wet steam or vapor, whereas the former, the correct method, requires improved combustion. The author further points out that smoke burning or smoke combustion are misnomers, because smoke already formed ordinarily can not be burned or consumed. The greatest difficulty in avoiding smoke is usually on switch or transfer engines, owing to the nature of their work, and on road engines starting out from their terminal. Here it is necessary to rely on the blower and "smoke burner," by means of which additional air is admitted to the fire box, this air serving to prevent the formation of smoke. When the steam jets are used in the fire box without inducing the flow of additional air into the fire box, the steam jets merely serve to paint the smoke and not to prevent it.

In addition to this generous supply of air, a sufficiently high fire-box temperature is necessary to prevent smoke formation. And, lastly, it is to be pointed out that the proper method of firing has considerable influence on smoke formation. Only a sufficient amount of fuel should be placed in the fire box at each firing to insure proper combustion.

Atmospheric Diffusion of Paris Smokes. Kohn-Abrest. Compt. rend. 185, 617-20 (1927). (Abstract by L. W. Riggs in *Chemical Abstracts*, vol. 22, No. 3, February 10, 1928, p. 473.)

"Samples of air taken at the base and at elevations of 57, 115, and 288 m. of the Eiffel Tower were analyzed. The quantity of CO₂ was about the same except at 288 m., where it was larger than at any of the lower levels. CO was absent at the base and at 288 m.; it was largest in amount at 115 m."

A New Larvicide for Mosquitoes. Robert Matheson and G. H. Hinman. American Journal of Hygiene, vol. 8, No. 2, March, 1928, pp. 293-296. (Abstract by L. L. Williams, jr.)

The authors experimented with chemically pure borax, with crystalline and calcined sodium borate, and with commercial borax. The latter was found to be as efficient as any. After experimenting with various concentrations, the authors conclude that ordinary borax in the concentration of 1.5 grams per liter of water proved an efficient larvicide for mosquito larvæ. This retains its action for long periods of time in wooden pails. Borax did not stop egg laying and hatching, but in no case did the young larvæ live for more than two days.

They quote reports that borax pools do not produce mosquitoes and that, in a borax country, this substance is not absorbed into the ground, but crystallizes on evaporation of the water and is ready for the next rain. The authors suggest that there is a field of usefulness for borax as a larvicide in such places as fire barrels, etc.

Water Supply, Sewage Treatment, and Refuse Disposal in 1927. H. B. Cleveland. *Public Works*, vol. 59, No. 1, January, 1928, pp. 14-18. (Abstract by R. J. Faust.)

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Water supply.—The most important change in policy has occurred in the privately owned water-supply field, where several large waterworks holding corporations have been purchasing a network of individual and affiliated water-supply systems, principally throughout the East, South, and Southeast. In the municipally owned water-supply field a marked increase is apparent in the number of joint water-supply districts.

Additional authority is being granted by legislatures to State departments of health in the matter of control of the sanitary quality of public water supplies, and a gradual elimination of cross-connections with polluted mill supplies is

being brought about.

Metering is being given more and more consideration, and the use of copper

and brass service connections is increasing rapidly.

Completed and projected improvements: New York City's proposed development of Delaware River water supply; the completion of the Moffat Tunnel, increasing the available water supply for Denver: completion of 100,000,000-gallon water-filtration plant for Washington, D. C.; proposed 360,000,000-gallon daily capacity intake tunnel under Lake Ontario, together with a filter and pumping station for Toronto; approval for development of Honeoye Lake as an additional source of water supply for Rochester, N. Y.; work is progressing on a new filter plant in Detroit, which will more than double the present filtered water supply; at New Orleans an addition to the filters, increasing the capacity by 72,000,000 gallons daily, is being completed; Baltimore has appropriated \$10,000,000 for water-supply extension; a second pressure tunnel is to be constructed for New York City from Hill View reservoir to Brooklyn.

Purification.—The most important recent developments are as follows: (1) Preliminary mechanical removal of mud and silt from turbid waters before coagulation and filtration; (2) a wider application of methods for aerating treated water to reduce taste and odors and to remove iron; (3) a more intensive study of color removal, principally by coagulation with sodium aluminate in combination with the usual coagulating reagent, aluminum sulphate; (4) increasing adoption of double coagulation, of split or double chlorination, and of chlorination preceding aeration in the case of hydrogen sulphide waters; (5) studies on the use of chloramine are being made as a possible solution of the problem of tastes in chlorinated waters; (6) refinement in strainer or underdrain systems for filters; (7) advancement of operation and handling chemicals at water softening plants; (8) an increase in the number of filter-plant associations.

The typhoid fever death rate again has shown a decrease during the past year. The Sterilization of Small Quantities of Water. D. T. M. Large. J. Roy. Army M. Corps, 1927, vol. 49, pp. 77-78. Abstract by Guy T. P. Tatham in

Bulletin of Hygiene, vol. 2, No. 12, December, 1927, p. 979.

"A solution is made by adding stabilized bleaching powder to a 4-oz. medicine bottle; about 1 inch depth in the bottom of the bottle suffices. The mixture is well shaken, and, after settling out, the supernatant liquor forms the sterilizing solution. A glass of water is sterilized by stirring with a match previously dipped to the hilt in the sterilizing solution. For a soldier's water bottle, a wire of the thickness of a match dipped in the solution for a few inches is enough. Ten drops is recommended for a washbasin as fitted in Indian trains. Diluted seven times with water the sterilizing solution forms a good wound antiseptic."

Swimming Pools and Other Public Bathing Places. Report of Joint Committee on American Public Health Assn., and Conference of State Sanitary Engineers. The American Journal of Public Health and The Nation's Health, vol. 18, No. 2, February, 1928, pp. 194-198. (Abstract by W. M. Olson.)

The committee dates from December, 1918. Its first work was to present data concerning epidemics caused by improperly operated pools. Next, by re-

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quest, attention was directed to a standard code for the sanitary control of bathing places.

Standards have been prepared, representing the experience of committee members and also the consensus of opinion of a large number of sanitarians and pool operators. While not yet formally adopted by either of the two organizations, these standards have been quite generally accepted. They were published in *The American Journal of Public Health* for December, 1926, and reprinted for wide distribution.

The committee recommends the adoption of the standards as printed, with minor changes in wording.

The Swimming Pool—Its Care and Aims. Francis E. Fronczak. Journal of the American Association for Promoting Hygiene and Public Baths, vol. 9, 1927, pp. 38-45. (Abstract by R. E. Tarbett.)

This article discusses the subjects of design, supervision, and maintenance of indoor swimming pools, touching upon some of the more important factors of each.

Indoor and Outdoor Swimming Pool Sanitation. Bengt Norman Bengtson. The Nation's Health, vol. 9, No. 4, April 15, 1927, pp. 41-45. (Abstract by Harriet S. Ryan.)

The author presents the practical side of pool hygiene. Observations were made mainly at pools of the West Chicago Park Commission and statistics were obtained from the Chicago public health department.

With the increasing popularity of swimming, the problem of modern pool hygiene is becoming more serious. The eradication, from the swimmer, the water, and the tank, of possible mediums for the transmission of any communicable disease is discussed. It was proved by experiments that careful supervision of shower rooms would lower considerably the bacterial count of the water. Warm water and liquid soaps should be used in the shower, and no suits should be worn wherever practicable not to do so. The bacterial count is influenced by drainage, dilution, and the use of chemicals. The most popular chemical treatment is chlorination. The necessity for toilet facilities and cuspidors is an important factor, and the care of the tanks should not be neglected. Directions for tank sanitation are given in the article.

Pollution of Water Supply by Swimming Pool Restrained. Anon. Water Works Engineering, February 29, 1928, p. 270. (Abstract by Harriet S. Ryan.)

Because the water from a public swimming pool in the Navasota River emptied directly into and polluted the lake of water impounded for the domestic use of the citizens of Groesbeck, Tex., legal proceedings were instituted by the city to prevent the use of that river for bathing purposes. The operators contended they had acquired legal rights as riparian owners, but the court restrained further use of the swimming pool, stating that it was not the question whether riparian owners were entitled to use public streams for bathing purposes, but that the real issue was, Could a public swimming pool be established for commercial purposes on a river and be used to the extent that it pollutes the water and makes it unfit for drinking and domestic purposes? The evidence in this record showed that the extent to which the swimming pool was to be used would contaminate and pollute the drinking water of the city of Groesbeck.

DEATHS DURING WEEK ENDED APRIL 21, 1928

Summary of information received by telegraph from industrial insurance companies for the week ended April 21, 1928, and corresponding week of 1927. (From the Weekly Health Index, April 25, 1928, issued by the Bureau of the Census, Depart-

ment by Commerce)	Week ended Apr. 21, 1928	Corresponding week, 1927
Policies in force	70, 998, 155	67, 421, 189
Number of death claims	15, 838	13, 589
Death claims per 1.000 policies in force, annual rate_	11.7	10.5

Deaths from all causes in certain large cities of the United States during the week ended April 21, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927. (From the Weekly Health Index, April 25, 1928, issued by the Bureau of the Census, Department of Commerce)

	Week en 21,		Annual death		under 1 ear	Infant mortality rate.
City	Total deaths	Death rate 1	1,000 corre- sponding week, 1927	Week ended Apr. 21, 1928	Corre- sponding week, 1927	week ended Apr. 21, 1928 ³
Total (66 cities)	8, 593	15.0	14.0	917	807	75
Akron	52			6	8	65
Albany 3	42	18.2	18.8	1	3	20
Atlanta	83	17.0	12.6	15	7	
White	40		9.8	5	1 4	
Colored	43	(4)	19.1	10	1 2	
Baltimore 3	258	16.2	16.6	27	24	86
White	198	10.2	14.1	17	16	68
Colored		40	30.7	10	8	157
Colored	60	16.2	16.5			
Birmingham	60	10.2		4	11	34
White	27		13.0	2 2	5	28 45
Colored	42	16.9	22.2		6	45
Boston	258	16.9	16.5	49	31	136
Bridgeport	33			2	3	37
Buffalo	144	13.5	14.2	17	10	73
Cambridge	24	10.0	14.3	4	3	71
Camden	24	9.3	19.6	0	7	0
Canton	22	9.8	11.0	i	2	24
Chicago 1	854	14.1	12.3	83	87	71
Cincinnati	149	18.8	19.4	15	10	91
Dieveland	214	11.1	11.0	29	23	79
Columbus	83	14.6	18.4	6	15	56
	51	12.3	8.6	4		
Dallas		14.0			2	********
White	38	*********	7.4	2 2	2	
Colored	13	(4)	17.1		0	
Denver	83	14.8	14.9	7	8	
Des Moines	45	15. 5	13.3	3	3	50
Detroit	373	14.1	13.6	67	52	103
Duluth	27	12.1	10.5	2	1	47
Il Paso	55	24.4	17.9	12	4	
Crie	20			1	2	21
fall River 1	24	9.3	11.0	6	3 1	103
Plint	27	9.5	8.8	7	6	89
ort Worth	38	11.8	14.3	6	7	
White	31		13.4	5	7	
Colored	7	(9)	21, 3	i	0	
rand Rapids	50	15.9	11.9	5	3	75
Iouston	71	10.0	11.0	9	7	10
	53				-1	
		/63		7	6	
Colored	18	12.9		2 5	1	
ndianapolis	94	12.9	13. 2	5	5	38
White	75 -	*******	12.5	5	3	44
Colored	19	14.2	18.6	0	2	0
ersey City	88	14.2	13, 6	11	0	82

¹ Annual rate per 1,000 population.
2 Deaths under 1 year per 1,000 births. Cities left bank are not in the registration area for births.
3 Deaths for week ended Friday, Apr. 20, 1928.
4 In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Ermingham, 39; Dailas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knokville, 15; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 23.

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Deaths from all causes in certain large cities of the United States during the week ended April 21, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927. (From the Weckly Health Index, April, 25, 1928, issued by the Bureau of the Census, Department of Commerce)—Continued

-941	Week en 21,	ded Apr. 1928	Annual death	Deaths	Infant mortality rate,	
City	Total deaths	Death rate	rate per 1,000 corre- sponding week, 1927	Week ended Apr. 21, 1928	Corre- sponding week, 1927	rate, week ended Apr. 21, 1928
Kansas City, Kans	27	11.9	12.4	0	5	
White	21		10.3	0	3	
Colored	6	(4)	22.1	0	2	
Kansas City, Mo	113	15. 1	12.0	9	5	6
Knoxville	25	12.4	10.2	1	1	2
White	15		10.4	1	1	2
Colored	10 270	(4)	8.5	27	27	
Los Angeles	29	13. 7	13. 2	4	3	7 8
Lowell	29	14.4	15.9	4	3	10
Memphis White	91	25. 0	18.7	6	10	70
White	41	20.0	12.2	4	3	71
Colored	50	(4)	30.4	2	7	62
Milwankee	148	. (1)	11.7	17	20	71
Minneapolis	132	15. 1	12.8	14	12	84
Nashville	75	28. 3	17.4	6	4	94
Willie	44		15.3	4	3	88
Colored	31	12.7	22.8 11.8	2 7	1	120
New Bedford	29 73	20.3	11.8	9	4 2	152
New Haven	162	19.7	15. 1	11	11	- 51
White	92	10. 1	10.5	5	0	36
Colored	70	(1)	28.4	6	5	87
New York	1,856	16.1	13.8	196	150	75
Bronx Borough	218	12.0	11.3	18	20	54
Brooklyn Borough	613	13.9	11.0	72	50	72
Manhattan Borough	795	23.7	19.8	88	69	104
Queens Borough	178	10.9	9.3	13	17	52
Richmond Borough	52	18.0	11.4	5	8	90
Newark, N. J.	134	14.8	12.1	13	11 3	67
Oklahoma CityOmaha	63	14.8	11.7	9	5	104
Paterson	34	12.8	17.4	5	3	87
Philadelphia	600	15.4	16.1	50	53	67
Pittsburgh	213	16.6	14.4	27	15	88
Portland, Oreg.	69			4	8	43
Providence	78	14.2	14.1	. 8	4	70
Richmond.	59	15.9	17.4	3	7	39
White Colored	31		16.8	0	2	0
Colored	28	15.8	18.8	3	5	110
Rochester	234	14. 4	15. 3	6 23	8 26	-49 77
St. LouisSt. Paul	69	14.3	13. 3	8	5	77
Salt Lake City 1	39	14.8	15.0	6	2	98
San Antonio.	80	19. 2	19.7	19	11 .	*********
San Diego	35	15.3	20.4	1	2	. 19
San Francisco	151	13.5	15. 4	6	10	38
Schenectady	20	11.2	9.0	2	3	63
Seattle	81	11.1	9.4	4	3	41
Somerville	28 24	14.3	12.4	6	1	207 26
Springfield, Mass.	38	13.3	15.2	4	4	63
Syracuse	73	19. 2	16.7	11	7	134
Tacoma	26	12.3	13. 1	3	2	77
Toledo	26 72	12.0	13.3	5	8	48
Trenton Washington, D. C.	30	11.3	18.7	7	4	119
Washington, D. C.	154	14.6	13.6	6	10	34
White	98 .	**********	12.3	3	7	25
Colored	56	(9)	17. 6	3	3 2	55
Waterbury	27 -	11.4	18.6	0 2		83
Worcester.	76	20.1	12.0	4	4	49
Yonkers.	31	13. 4	9.2	2	3	46
Youngstown	47	14.1	14.2	6	5	80
		****				00

Deaths for week ended Friday, Apr. 20, 1928.
 In the cities for which deaths are shown by color the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the

Reports for Weeks Ended April 30, 1927, and April 28, 1928

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended April 30, 1927, and April 28, 1928

	Diph	theria	Influ	ienza	Me	asles	Mening	gococcu ngitis
Division and State	Week ended Apr. 30, 1927	Week ended Apr. 28, 1928	Week ended Apr. 30, 1927	Week ended Apr. 28, 1928	Week ended Apr. 30, 1927	Week ended Apr. 28, 1928	Week ended Apr. 30, 1927	Week ended Apr. 2 1928
New England States:				-				
Maine	2	1	7		86	31	0	
New Hampshire		- 1				30		
Vermont	1			29	122	1,397	0	
Massachusetts	75	92	14	20	408	361	2	
Rhode Island	3	8 29		17	2	354		
Connecticut	26	29	3	14	50	334	0	
Non Vork	423	289	145	1 155	869	3,045		
New York	110	107	22	28	76	1, 499	7 2	
New Jersey	172	169	22	20	744	2,024	1	
Pennsylvania ast North Central States:	112	109			199	2,021		
Ohio		145		114		702		
Indiana	34	15	33	114	281	650	0	
Illinois	99	109	58	227	1,450	173	12	
Michigan		60	00	21	211	1, 126	0	
Wisconsin	34	18	43	780	847	49	9	
est North Central States:	0.		-		04,			
Minnesota	13	27	5	9	140	105	7	
Iowa	10	5				18		
Missouri	51	19	1	29	205	527	3	
North Dakota	2	11	-	132	73	26	0	
South Dakota			9	13	219	11	1	
Nebraska.	9	7	8	15	406	128	0	
Kansas	9	7	12	4	1,027	167	2	
outh Atlantic States:								11.00
Delaware	2				8	35	0	
Maryland 2	29	30	34	38	23	728	0	
Maryland ² District of Columbia	16	17	2	3	6	168	0	
West Virginia	12	19	105	12	169	207	0	310
North Carolina	11	19			1,681	1, 384	0	4
South Carolina	12	13	1, 222	543	173	401	0	
Georgia	8	6	140	102	106	150	1	1000
Florida	14	7	7	1		94	1	
ast South Central States:	-	-		-				
Kentucky Tennessee		9		28		319	******	
A la harma	8	17	112	339	121	784	1	
Alabama	23	11	87	181	317	426	1	
Mississippi est South Central States:	5	9						
Arkansas	7	2	59	351	195	393	0	100
Louisiana	28	13	27	45	80	355	0	
Oklahoma 3	13	21	67	730	421	447	0	Section 1
Texas	11	15	17	59	275	103	0	
ountain States:	**			. 00	210	100	0	
Montana	1	2		15.0	40	4	2	
Idaho	i	-			48		2	
Wyoming	2	1			75	14	ő	
Colorado	23	13			118	96	1	
New Mexico	2	8		3	117	64	ô	

¹ New York City only.

Week ended Friday.

² Exclusive of Tules

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended April 30, 1927, and April 28, 1928

	Diph	theria	Influ	enza	Me	asler	Mening	gococcus ingitis
Division and State	Week ended Apr. 30, 1927	Week ended Apr. 28, 1928	Week ended Apr. 30, 1927	Week ended Apr. 28, 1928	Week ended Apr. 30, 1927	Week ended Apr. 28, 1928	Week ended Apr. 30, 1927	Week ended Apr. 28, 1928
Mountain States—Continued. Arizona Utah Pacific States:	7 6	7 6	2	1 7	27 63	8	0	1
Washington Oregon California	. 13	8 5 88	35 23	1 16 27	459 370 2, 378	165 90 111	3 0 7	2 3
	Polion	nyelitis	Scarle	t fever	Sma	llpox	Typho	id fever
Division and State	Week ended Apr. 30, 1927	Week- ended Apr. 28, 1928	Week ended Apr. 30, 1927	Week ended Apr. 28, 1928	Week ended Apr. 30, 1927	Week ended Apr. 28, 1928	Week ended Apr. 30, 1927	Week ended Apr. 28, 1928
New England States:	0	0	29	24	0	0		
Maine New Hampshire Vermont Massachusetts	0 2	0 0	12 435	9 10 240	0	0 0	1 5	0 6 4
Rhode Island Connecticut Middle Atlantic States:	0	0	12 99	38 77	0	0	1	0
Middle Atlantic States: New York New Jersey Pennsylvania East North Central States:	0 1	0 0 2	944 277 466	722 253 439	3 0 0	2 6 2	18 6 42	5
Ohio Indiana. Illino ^{ig} Michigan		1 0 0 0	196 255 253 127	219 70 314 301 122	166 18 34 7	25 111 37 27	1 8 11	12 12 4
Wisconsin. West North Central States: Minnesota.	0	1	176	120	8	2	2	1
Iowa. Missouri. North Dakota. South Dakota. Nebraska Nebraska Kansas. South Atlantic States:	0 0 0 0 0	0 0 0 1 0 0	95 69 57 60 83	78 108 39 25 63 159	18 12 7 31 5	51 44 3 11 52 104	3 2 0 1	1 1 0 0 3
Delaware Maryland ² District of Columbia West Virginia North Carolina South Carolina Georgia Florida	0 0 0 0 1 0 3	0 1 0 0 1 1 1 0	19 67 29 43 19 3 13 7	0 100 51 27 16 12 14 4	0 0 48 47 14 24 32	0 0 1 40 103 5 0 12	0 11 0 1 5 15 8 25	0 5 0 9 1 7 4
East South Central States: Kentucky Tennessee Alabama. Mississippi West South Central States:	0 0	0 1 0 0	31 9 10	38 35 11 11	11 34 4	24 48 5 0	11 12 2	5 4 2 10
Arkansas Louisiana Oklahoma 3 Texas	0 2 1 0	0 0 0	3 7 · 53 14	12 10 49 53	8 12 41 47	15 20 94 43	16 17 11 12	4 9 8 5
Mountain States: Montana. Idaho. Wyoming. Colorado. New Mexico.	0 0 0	1 0 0 1 0 0	61 11 17 145 11	8 9 20 65 29	8 15 1 4 0	30 7 1 2 3	3 0 0 2	0 0 1 0 1
Arizona Utah ² Pacific States: Washington Oregon	0 0 1	2 0	29 60 32	10 38 2	0 0 21 10	6 11 35 63	2 0 4 2 9	0 0 10
California	ô	6	186	122	34	19	9	3

Week ended Friday.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Malaria	Measles	Pella- gra	Polio- myelitis	Scarlet fever	Small- pox	Ty- phoid fever
March, 1928										107.
Arkansas	10	18	2, 168	105	1, 986	74	1	81	27	22
Flo ida	1	56	36	13	227	5	1	35	40	33
Illinois	63	643	854	7	896		6	1, 669	232	42
Indiana	2	132	184		1,038		1	720	710	11
Iowa	4	56			173		0	343	257	4
Louisiana	4	96	513	34	1, 202	17	0	63	122	30
Michigan	0	281	17	1	5, 813		2	1, 229	161	19
Mississippi	2	77	11, 095	2,833	8, 536	549	7	64	31	51
Missouri	40	246	558	1	1, 349	2	5	628	296	10 79
New York	103	1, 583		5	10, 394		17	3, 912	37	79
Ohio	20	577	258		4, 598		10	1, 289	187	35 53
Pennsylvania	35	954			6, 670	1	5	2, 620	2	53
Rhode Island	0	44	10.		481		1	225	0	1
Tennessee	5	85	1, 207	41	2, 158	18	3	171	148	31
West Virginia	6	112	180		628		3	241	391	33
Wyoming	6	1	5		254		1	- 83	32	1

March, 1928	Cases
Actinomycosis:	
Illinois	. 1
Anthrax:	
Illinois	. 1
New York	. 4
Pennsylvania	. 8
Chicken pox:	
Arkansas	137
Florida	425
Illinois	1,738
Indiana	425
Iowa	244
Louisiana	79
Michigan	663
Mississippi	894
Missouri	439
New York	
Ohio.	
Pennsylvania	2,888
Rhode Island	
Tennessee	206
Virginia	
Wyoming	60
Conjunctivitis:	
Missouri	19
Dengue:	-
Mississippi	14
Dysentery:	
Florida	5
Illinois	
Iowa	
Mississippi—	-
Amebic	58
Bacillary	
Missouri (amebic)	
New York	
Tennessee	
German measles: Illinois	100
Iowa	7

New York 1,594 Ohio 66 Pennsylvania 505 Rhode Island 3 Hookworm disease: 7 Arkansas 7 Florida 38 Louisiana 7 Missouri 263 Lead poisoning: 11 Illinois 13 Ohie 13 Leprosy: Florida 2 2	German measles—Continued	Cases
Ohio 66 Pennsylvania 505 Rhode Island 3 Hookworn disease: 7 Arkansas 7 Florida 38 Louisiana 7 Missouri 263 Lead polsoning: 11 Illinois 13 Ohio 13 Leprosy: Florida 2	New York	1, 594
Pennsylvania 505 Rhode Island 3 Hookworm disease: 7 Arkansas 7 Florida 38 Louisiana 7 Missouri 263 Lead poisoning: 11 Illinois 13 Ohio 13 Leprosy: Florida Florida 2		
Rhode Island 38 Hookworm disease: Arkansas 7 Florida 38 Louisiana 7 Missouri 263 Lead polsoning: Illinois 13 Ohio 13 Leprosy: Florida 2 2 2 2 2 2 2 2 2		
Hookworm disease:		
Arkansas. 7 Florida. 38 Louisiana. 7 Missouri. 263 Lead poisoning: 11 Illinois. 13 Ohio. 13 Leprosy: Florida. 2		
Florida	and the state of t	
Louisiana 7		
Missouri 263 Lead poisoning:		
Lead poisoning: 13 Ohio 13 Leprosy: 13		
Illinois		
Ohio 13 Leprosy: Florida 2	Illinois	13
Florida	Obio	
Florida	Laprogus	
Louisiona	Florida	9
	Louisiana	
Lethargic encephalitis:	Louisiana.	
Illinois	Dingie	- 11
-		11 9

-		

New York		
Ohio		
Pennsylvania 9		
1 UIIIUNUU		3
Mumps:		105
Arkansas 195 Florida 66		400
Illinois 1, 743		
Indiana 713		
Iows		
Louisiana 24	The state of the s	000
Michigan 2, 398		
Mississippi 1,507		
Missouri 1, 188		
New York		
Ohio 2, 322		2, 322
Pennsylvania 4,611		
Rhode Island 185	Rhode Island	185
Tennessee 396		396
Wyoming 48		48

Ophthalmia neonatorum:	Cases	Trachoma:	Cases
Arkansas	2	Arkansas	98
Illinois	49	Illinois	15
Mississippi	26	Mississippi	14
New York	9	Missouri	4
Ohio	82	New York	4
Pennsylvania	12	Ohio	6
Tennessee	4	Tennessee	14
Paratyphoid fever:		Trichinosis:	
Arkansas	1	Illinois	1
Florida	1	Tularaemia:	
Puerperal septicemia:		Louisiana	1
Illinois	20	Ohio	1
Mississippi	34	Tennessee	1
New York	18	Typhus fever:	-
Ohio	4	New York	1
Pennsylvania	11	Undulant (Malta) fever:	
Rabies in animals:	-	Iowa	1
Mississippi	10	Ohio	1
Missouri	3	Vincent's angina:	
New York	22	Illinois	1
Rhode Island	10	Iowa	1
Rabies in man:		New York	89
Illinois	1	Whooping cough:	00
Ohio.	1	Arkansas	107
Tennessee *	2	Florida	43
Scables:	•	Illinois	1, 131
	7		169
Iowa	14	Indiana	33
Wyoming Septic sore throat:	19	Louisiana	31
	32		651
Illinois	41	Michigan Mississippi	
Michigan	26		1, 579
Missouri		Missouri	404
New York	56		2, 024
Ohio	93	Ohio	728
Tennessee	13	Pennsylvania	
Tetanus:		Rhode Island	23
Florida	1	Tennessee	125
Illinois	1	Virginia	75
Louisiana	2	Wyoming	25
Missouri	2		
New York	1		

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of March, 1928, by departments of health of certain States to other State health departments

Referred by—	Diph- theria	Amebic dysentery	Scarlet fever	Smallpox	Tuber- culosis	Typhoid fever
California				2	. 1	
Minnesota		1 66	1	ĭ	18	
New YorkOhlo	2	********	3			

¹⁶¹ of these cases are delayed reports for year 1927.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 100 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregated population of more than 31,400,000. The estimated population of the 94 cities reporting deaths is more than 30,700,000. The estimated

expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended April 14, 1928, and April 16, 1927

	1928	1927	Estimated expectancy
Cases reported			
Diphtheria:			
43 States	1,440	1,724	
100 cities	867	1,037	883
Measles:			4 1 1 1 1 1 1 1 1
42 States	17,668	15, 173	
100 cities	8, 112	4, 547	
Poliomyelitis:	9	.,	
43 States	21	13	
Scarlet fever:		10	
43 States	4, 191	5, 185	
100 cities	1, 365	2, 296	1, 324
Smallpox:	1,000	2, 200	1,000
	1,060	881	
	123	143	133
Typhoid fever:	120	140	100
	161	278	
	33	47	48
100 cities	99	41	40
Deaths reported			
			11.00
Influenza and pneumonia:		000	1
94 cities	1,390	909	
Smallpox:			1
94 cities	0	0	

City reports for week ended April 14, 1928

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible but no year earlier than 1919 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

	15.79			theria	Infl	uenza	Le ign	1	
Division, State, and city	Population, July 1, 1926, estimated	Chick- en pox, cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported	Mea- sies, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
NEW ENGLAND						2.			
Maine:			-	1				0.08	3 17
Portland	76, 400	6	1	1	0	0	0	.14	IT CON
New Hampshire:			1	11				- 1 6	2,515
Concord	1 22, 546	0	1	0	0	0	0	0	10.9
Manchester	84,000	0	2	0	0	1	6	0	
Vermont:			1	-	1000	1		4	1000
Barre	1 10, 008	5	0	0	0	0	0 5	0	. 0
Burlington	1 24, 089	0	0	1	0	0	8	0	. 0
Massachusetts:		13575	1	1		1 1 1		-	
Boston	787, 000	14	35	29	3	0	332	11	32
Fall River	131,000	2	3	3	0	0	0	2	4
Springfield	145, 000	9	3	9	2	1	4	41	2
Worcester	193,000	15	4	. 5	4	1	54	40	6
Rhode Island:	TE TO					350			
Pawtucket	71,000	3	1	1	0	0	6	12	2
Providence	275, 000	0	8	13	0	1	215	12 7	8

Estimated, July 1, 1925.

	1112	es y	Diph	theria	Infli	uenza	101		
Division, State, and city	Population, July 1, 1926, estimated	Chiek- en pox, cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported	Mea- sles, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
NEW ENGLAND-Con.									
Connecticut: Bridgeport Hartford New Haven	(7) 164, 000 182, 000	2 7 7	5 6 3	9 2 1	0 1 1	0 0 1	2 26 112	0 8 61	8
MIDDLE ATLANTIC									
New York: Buffalo. New York. Rochester. Syracuse.	544, 000 5, 924, 000 321, 000 185, 000	9 138 3 15	- 248 9 5	26 301 5 2	117	0 31 1 0	112 1,634 54 160	24 24 17 13	318 10 6
New Jersey: Camden Newark Trenton	131, 000 459, 000 134, 000	3 27 2	5 11 3	3 26 4	0 7 1	0 3	65 427 8	3 12 6	20 5
Pennsylvania: Philadelphia: Pittsburgh Reading	2, 008, 000 637, 000 114, 000	59 22 13	70 17 2	52 10	2 0 0	12 8 0	967 136 7	76 65 0	98 33 4
EAST NORTH CENTRAL									111
Ohio: Cincinnati Cleveland Columbus Toledo Indiana:	960, 000	5 30 4 26	8 25 3 3	10 43 0 3	2 13 5 6	4 3 5 4	74 49 74 266	3 156 4 19	24 23 5 5
Fort Wayne Indianapolis South Bend Terre Haute	99, 900 367, 000 81, 700 71, 900	29 0 5	2 5 1	3 5 3 0	0 0	1 1 0 0	1 88 0 0	0 151 0 0	3 24 0 3
Illinois: Chicago Springfield	3, 048, 000 64, 700	76 11	72	81	37	14	30	44	105
Michlgan: Detroit	1, 290, 000 136, 000 156, 000	39 12 5	49 3 4	27 1 0	5 0	6 0	1, 084 90 25	35 80 13	70 14 1
Wisconsin: Kenosha Milwaukee Racine	52, 700 517, 000 69, 400 1 39, 671	32 94 5	0 13 2	. 0 4 1	0 8 0	0 5 0	2 6 1	0 22 4	0 23 2
Superior	1 39, 671	0	0	0	0	0	0	0	8
WEST NORTH CENTRAL									
Minnesota: Duluth Minneapolis St. Paul	113, 000 434, 000 248, 000	4 83 28	0 14 12	0 7 4	40 0 0	2 6 0	1 88 2	206 67	29 11
Iowa: Davenport Des Moines Sioux City Waterloo	1 52, 469 146, 000 78, 000 36, 900	6 0 8 11	0 2 1 0	1 1 0 0	0 0		6 0 4 2	1 0 39 7	
Kansas City St. Joseph St. Louis	375, 000 78, 400 830, 000	17 3 21	5 1 39	1 0 38	0 0	3 0	53 0 290	108 9 13	19 7
North Dakota: Fargo Grand Forks	1 26, 403 1 14, 811	0	0	0	0	1	0	1 1	0
South Dakota: Aberdeen Nebraska:	1 15, 036	10	0	0	0		0	0	
Lincoln Omaha Kansas:	62, 000 216, 000	6	1 2	. 0	0	0	0	36 0	12
Topeka	58, 500 92, 500	23 21	1	0	0	0	0	3 0	5

¹ Estimated, July 1, 1925.

¹ No estimate made.

1096 City reports for week ended April 14, 1928-Continued

	1. 14	1	Diph	theria	Infle	ienza			
Division, State, and city	Population, July 1, 1926, estimated	Chick- en pox, cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported	Mea- sles, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
SOUTH ATLANTIC									1.00
Delaware:	104 000							7	Sur.
Wilmington Maryland:	124, 000	1	2	2	0	0	3) ·
Baltimore Cumberland	808, 000 1 33, 741	71	27	25 1	13	6	818	22	48
Frederick	1 12, 035	0	0	Ô	o	0	6	0	3
District of Columbia: Washington	528, 000	11	- 11	14	4	4	157	0	12
Virginia:		**						100	
Lynchburg Norfolk	30, 500 174, 000	15	0	0	0	0	12 68	1	1 6
Richmond	189,000	5	2	2	0	1	0	1	6
Roanoke West Virginia:	61, 900	5	- 0	0	. 0	2	9	0	0
Charleston	50,700	2	0	0	. 0	1	0	0	1
Wheeling North Carolina:	1 56, 208	2	1	0	0	0	- 6	0	1
Raleigh	1 30, 371	1	0	1	0	0	44	0	3
Wilmington Winston-Salem	37, 700 71, 800	3 8	. 1	0	0	0	33	15	3 2 5
South Carolina:									
Charleston	74, 100 41, 800	7	0	0.	8	0	0	31	2 2
Greenville	1 27, 311	0	0	0	0	0	2	4	2 2
Georgia: Atlanta	(2)	15	2	2	9	2	12	8	13
Brunswick	1 16, 809	0	0	0	0	0	18	4	1
Savannah Florida:	94, 900	3	0	0	6	1	3	. 0	5
Miami St. Petersburg	1 69, 754 1 26, 847	11	3	2	0	0	1	6	0 2
Tampa	102, 000	6	0	0	0	0	1	1	ő
EAST SOUTH CENTRAL									
Kentucky:								11/1	ESS.
Covington Louisville	58, 500 311, 000	0	1	0 2	0 5	0	14	10	12
Tennessee:									
Memphis Nashville	177, 000 137, 000	12	3 0	2 2	0	6	34 18	13	5
Alabama:	1000000							1000	
Birmingham	211, 000 66, 800	6	1 1	0	13	3	37	5	6 2
Montgomery	47,000	7	o	i	0		13	1	
WEST SOUTH CENTRAL					1			11111	
Arkansas:								27.5	10.5
Fort SmithLittle Rock	1 31, 643 75, 900	0	0	0	3	1	15	0	4
Louisiana:									1-17
New Orleans Shreveport	419, 000 59, 500	2 2	7 0	24	12	7	48	0	14
Oklahoma:									300
Oklahoma City Tulsa	133, 000	3 26	1 1	2	34	0	22	12	1 1 5
l'exas:	203, 000	21	4	7	8	3	5	- (1023	12
Port Worth	159, 000	11				0	8	0 0 0	8
Galveston	1 164, 954	0	2 0 2 1	1 2 5	0 0	0	32	0	13
San Antonio	205, 000	2	î	5	0	11	4	0	7
MOUNTAIN					7	200	3	100	
Montana:				2					
Billings	1 17, 971	0	0	2	0	0	0	0	0
Great Falls	1 29, 883 1 12, 037	6 0	0	1 0	0 0	0	0 2 0	0 0	1 0
ALUICHO	1 12, 668	01	U	01	0 1	0	U	0.1	NAT 1

	1		Diph	theria	Infl	uenza			
Division, State, and city	Population, July 1, 1926, estimated	Chick- en pox, cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported	Mea- sles, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
MOUNTAIN—continued	,								
Idaho:									
Boise	1 23, 042	2	1	0	0	. 0	0	0	0
Colorado:						-	-	-	
Denver	285, 000	29 8	10	9		5	. 69	77	15
Pueblo New Mexico:	43, 900	8	1	0	0	0	9	0	1
Albuquerque	1 21, 000	3	0	0	0	0	7	0	
Utah:	- 21,000	0							
Salt Lake City	133, 000	35	3	3	0	1	3	0	0
Nevada:	,				-				
Reno	1 12, 665	0	0	0	0	0	1	0	0
PACIFIC									
Washington:	500	100							
Seattle	(2)	16	5	0	0		133	5	
Spokane	109,000	6	2	0	0		0	0	
Tacoma	106, 000	6	1	0	0	0	27	87	2
Oregon:									
Portland	1 282, 383	30	7	5	0	0	16	3	9
California:						-			
Los Angeles	73, 400	141	42	19	32	3	24	72	18
Sacramento	73, 400	2	2	1	0	0	1	7	4
San Francisco	567, 000	40	20	9	4	1	20	32	2

. 17/1	Scarle	t fever		Smallpe	×	Tuber-	Ту	phoid f	ever	Whoop-	
Division, State, and city	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported	culosis, deaths esti-	ing cough,	Deaths, all causes			
NEW ENGLAND											
Maine:											
Portland	3	2	0	0	0	1	1	0	0	6	26
New Hampshire:											
Concord	1	0	0	0	0	2	0	0	0	0	11
Manchester	4	3	0	0	0	0	0	0	0	0	26
Vermont:					-						
Barre	0	0	0	0	0	0	0	0	0	0	1
Burlington	0	0	0	0	0	0	0	0	0	0	8
Massachusetts: Boston	-							- 0		56	245
Fall River	72	71	0	0	0	12	1	0	0	0	32
	6	19	0	0	0	i	0	0	0	10	02
Springfield Worcester	10	7	0	0	0	2	1	0	0	12	35 72
Rhode Island:	10		0	0	0	2		0	0	12	12
Pawtucket	1	1	0	0	0	2	0	0	0	0	25
Providence	9	25	0	0	0	6	0	2	0	2	92
Connecticut:		40						-		-	0.0
Bridgeport	12	3	0	0	0	1	0	0	0	9	34
Hartford	5	3	0	0	0	2	0	1	0	2	39
New Haven	11	0	Ö	0	0	1	0	ō	0	24	25
		18								100	
MIDDLE ATLANTIC			1								
New York:					1 3						1
Buffalo	23	1	0	0	0	14	1	0	0	12	172
New York	275	386	1	0	ő	116	9	10	0	145	1,763
Rochester	15	6	0	0	0	3	0	0	0	3	95
Syracuse	12	10	0	0	0	0	Ö	ő	0	24	54
New Jersey:		-	-					-			
Camden	6	3	0	. 0	0	2	0	0	0	0	47
Newark	30	36	0	0	0	6	1	1	1	19	130
Trenton	3	1	0	0	0	1	0	0	0	0	59
Pennsylvania:	100				-						
Philadelphia	95	83	0	0	0	46	3	0	0	60	650
Pittsburgh	29	18	1	0	0	11	1	0	0	10	206
Reading	3	16	0	. 0	0	0	0	0	0	6	39

¹ Estimated, July 1, 1925.

No estimate mage.

City reports for week ended April 14, 1928-Continued

	Scarle	t fever		Smallpo	X		Ту	phoid i	lever	Whoop-	
Division, State, and city	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported	Tuber- culosis, deaths re- ported	Cases, esti- mated expect- ancy	Cases re ported	Deaths re- ported	ing cough, cases re- ported	Deaths, all causes
EAST NORTH CENTRAL	-								1		27.71.2
Ohio: Cincinnati	20	18		1		8	1	0		7	170
Cleveland	.37	16	0	0	0 0	17	1	0	0	49	212
Columbus Toledo	14	10	2 2	0	0	8	0	0	1	14	83 55
Indiana:		11		0			1 60	0			1547
Fort Wayne Indianapolis	6 9	3	3 8	0	0	0 7	0	0	0	2	22 118
South Bend	4	0	8	1	0	0	0	0	0	0	12
Terre Haute Illinois:	2	0	1	3	. 0	1	0	0	0	0	20
Chicago	119	74	2	0	0	65	2	0	0	116	784
Springfield Michigan:	2	9	0	-9	0	0	0	0	0	0	29
Detroit	92	99	2	2	0	27	1	1	2	65	358
Flint	7 7	9	1	12	0	0	0	0	0	2	36 43
Wisconsin:											111
Kenosha Milwaukee	3 27	40	1	0	0	8	0	0	0	0	148
Racine	4	2	2	0	0	1	0	0	0	4	14
Superior	3	0	1	0	0	1	0	0	0	0	12
WEST NORTH CENTRAL											
Minnesota:											
Duluth Minneapolis	49	31	5	0	0	0	0	0	0	15	24 138
St. Paul	29	6	4	1	0	3	0	0	0	32	. 47
Iowa: Davenport	0	13	3	0	75		0	0		0	
Des Moines	6	12	2	9			0	0		0	
Sioux City Waterloo	2	8	2 2 0	1			0	0		0	*******
Missouri:				0							
Kansas City St. Joseph	13	37	3	4 2	0	11	0	0	1 0	8	99 25
St. Louis	39	36	4	3	0	20	2	2	0	11	235
North Dakota:					0			2		10	2
Grand Forks	2 0	3	1 0	0	0	0	0	0	0	0	
South Dakota:											
Aberdeen Nebraska:	2	2	0	0			0	0		2	
Lincoln	3	4	0	0	0	0	0	0	0	1	22 51
Omaha Kansas:	3	8	8	4	0	1	0	0	1	0	91
Topeka	3	5	0	3	0	0	0	0	0	3 10	21 15
SOUTH ATLANTIC	2	1	1	7	0	1	0	0	0	10	10
								-			
Delaware: Wilmington	5	0	0	0	0	0	0	0	0	0	31
Maryland:							1				
Baltimore	36	34	0	0	0	22	0	0	0	35	284 14
Frederick	i	1	0	0	0	0	0	0	0	0	5
District of Colum- bia:	2		10	-				5			
Washington	23	27	1	1	0	12	1	0	0	7	141
Virginia: Lynchburg	0	0	0	0	0	0	0	0	0	6	7
Norfolk	1	4	0	0	0	2	1	0	0		
Richmond	3 2	3	0	0	0	6	0	0	0	2 1	48 19
West Virginia:											
Charleston	0	1	1	1	0	1	0	0	0	0	16
Wheeling North Carolina:	3	0	0	1	0	1	0	0	0	0	
Raleigh	1	0	0	2	0	1	0	0	0	3	14
Wilmington Winston-Salem	0	0	0 8	0	01	1	0	0	0	1 0	25

	Scarle	t fever		Smallpo	x			phoid f	ever	Whoop-	
Division, State, and city	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported	Tuber- culosis, deaths re- ported	Cases, esti-	Cases re- ported	Deaths re- ported	ing cough, cases re- ported	Deaths, all causes
SOUTH ATLANTIC— continued											
South Carolina: Charleston Columbia Greenville	0 0	0 2 0	0 0 1	0 0	0 0	1 1 1	0 1 0	0 0	0 0	0 0	12 11 12
Georgia: Atlanta Brunswick Savannah	4 0 0	11 0 0	5 0 1	0 0 1	0 0	9 1 3	0 0	0 0	0 0	0 1 0	83 5 33
Florida: Miami St. Petersburg Tampa	0 1 0	1	1 0 0	0	. 0	2 2 0	1 0	3	0 0	3	27 10
EAST SOUTH CENTRAL											
Kentucky: Covington Louisville:	2 7	3 41	1 0	1 3	0	0 7	0	0	0	0 5	28 85
Tennessee: Memphis Nashville Alabama:	5 2	2 1	4	0 3	0	11 2	1	0 2	0	4 0	74 55
Birmingham Mobile Montgomery	2 0 0	0 0	8 1 0	0 0	0	5 0	1 1 0	0 1 0	0	8 0 0	62 27
WEST SOUTH CENTRAL											
Arkansas: Fort Smith Little Rock Louisiana:	0	9	0	0	0	1	0	0	0	5	
New Orleans Shreveport Oklahoma:	5	6	1	0	0	17	0	3	1 0	6 3	138 31
Oklahoma City Tulsa Texas:	1	10	3	12	0	-1	0	0	0	4	34
Dallas Fort Worth Galveston Houston San Antonio	1 0 1 1	12 6 0 1 3	2 3 0 1 0	3 8 0 1 0	0 0 0 0	2 0 0 3 4	0 0 0 0	0 0 2 0 0	0 0 2 1 0	0 0 0 0	52 45 13 67 75
Montana: Billings. Great Falls Helena Missoula	0 1 0 1	0 0 0	0 0 0 1	0 3 2 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	6 5 0	7 9 2 6
Idaho: Boise Colorado:	1	0	0	0	0	0	. 0	0	0	0	8
Pueblo New Mexico:	11 2	22 2	0	0	0	8	1	0	0	24 0	96 12
Albuquerque Utah:	0	. 2	0	0	0	2	0	0	0	0	12
Salt Lake City. Nevada: Reno	0	0	0	0	0	0	0	0	0	0	24
Washington: Seattle Spokane Tacoma	8 6 2	5 6 2	3 5 5	0 24			1 0	0		2 0	*********
Oregon: Portland	.8	1	6	32	0	3	0	0	0	0	26 77
California: Los Angeles Sacramento San Francisco	22 1 16	21 0 14	4 0 3	2 0 2	0 0	30 7 14	1 0 1	0 0 1	0 0	30 1 10	25 186

	Cereb	rospinal ingitis	Let	hargie phalitis	Pe	llagra	Poliomyelitis (infan- tile paralysis)			
Division, State, and city	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, esti- mated expect- ancy	Cases	Deaths	
NEW ENGLAND									1	
Massachusetts:					0	0	0			
Worcester	0	0	0	0				0	1	
Bridgeport MIDDLE ATLANTIC	0	1	0	0	0	0	0	0	(
									Ewy.	
New York: New York	34	13	2	2	0	0	0	1	1	
New Jersey: Newark	1	1	2	0	0	0	0	1		
Pennsylvania: *		0	0	0	0	0	0	1	1	
PhiladelphiaPittsburgh	0	.2	0	0	ő	0	0	Ô	0	
EAST NORTH CENTRAL		100			11					
Ohio: Cleveland	4	0	0	0	0	0	0	0	0	
Cleveland	1 1	1	0	0	0	0	0	0	0	
Indiana: Indianapolis	0	3	0	0	0	0	0	0	0	
Illinois: Chicago	9	2	1	0	0	0	0	1	0	
Michigan: Detroit	6	4	0	0	0	0	0	0	0	
Wisconsin: Milwaukee	6	3	0	0	0	0	0	0	0	
WEST NORTH CENTRAL		1		-						
Minnesota:										
Minneapolis St. Paul	1 1	0	0	0	0	0	0	0	0	
Missouri:		2	0	0	0	0	0	0	0	
Kansas City St. Louis North Dakota:	3	0	0	ő	0	ő	0	0	0	
North Dakota: Fargo	0	0	0	0	0	0	0	1	0	
SOUTH ATLANTIC 1		7.1					20	opi.		
Maryland:								100	1	
Baltimore	1	0	2	2	0	0	0	0	0	
District of Columbia: Washington	1	0	0	0	0	0	0	0	0	
Virginia: Richmond	2	0	0	0	0	0	0	0	0	
South Carolina: Charleston	0	0	0	1	1	0	0	0	0	
Greenville	ő	ő	ő	ô	ō	i	0	Ö	ő	
Georgia: Brunswick Savannah	0	0	0	0	1	0	0	0	- 0	
EAST SOUTH CENTRAL									503	
Tennessee:									Y	
Nashville	0	0	0	0	1	0	0	0	0	
Birmingham	1	1	0	0	0	0	0	0	0	
Mobile WEST SOUTH CENTRAL	0	0	0	0	0	1	0	0		
Arkansas:										
Little Rock	0	0	0	0	0	2	0	0	0	
Louisiana: New Orleans	0	0	0	0	4	2	0	0	0	

¹ Typhus fever, 2 cases at Tampa, Fla.

City reports for week ended April 14, 1928-Continued

	Cereb	rospinal lingitis	Lethargic encephalitis		Pellagra		Poliomyelitis (infatile paralysis)			
Division, State, and city	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, esti- mated expect- ancy	Cases	Deaths	
WEST SOUTH CENTRAL—continued										
Oklahoma: Oklahoma City Texas:	0	0	0	1	0	1	. 0	0		
Fort Worth	0	0	0	0	0	1 0	0	0		
MOUNTAIN Colorado:										
Denver Nevada:	2	3	0	1	0	0	0	0		
Renq	1	0	0	0	0	0	0	.0	0	
Washington:				1						
Spozane	0	0	0	0	0	0	0	0	1	
Los AngelesSan Francisco	0	1 0	0	0	1	1 0	0	0	0	

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended April 14, 1928, compared with those for a like period ended April 16, 1927. The population figures used in computing the rates are approximate estimates as of July 1, 1927 and 1928, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 31,050,000 in 1927 and 31,657,000 in 1928. The 95 cities reporting deaths had nearly 30,370,000 estimated population in 1927 and nearly 30,961,000 in 1928. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, March 11 to April 14, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927 1

DIPHTHERIA CASE RATES

		Week ended—										
	Mar. 19, 1927	Mar. 17, 1928	Mar. 26, 1927	Mar. 24, 1928	Apr. 2, 1927	Mar. 31, 1928	Apr. 9, 1927	Apr. 7, 1928	Apr. 16, 1927	Apr. 14, 1928		
101 cities	176	158	178	158	190	139	200	132	174	2 14		
New England Middle Atlantic	137 240	136 212	130 226	124 222	137 263	110 181	181 269	126 188	105 271	16 20		
East North Central West North Central South Atlantic	157 127 141	135 115 139	178 121 146	148 132 112	159 158 157	146 84 121	169 170 117	121 101 88	135 109 141	2 10 8		
East South Central	30 161	105 136	174	60 116	61 178	85 108	66 335	25 132	86 141	10		
Pacific	126 165	106 125	81 193	80 105	108	115 74	170 125	77	108 115	-13		

¹ The figures given in this table are rates per 190,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1927 and 1928, respectively.
² St. Paul, Minn., not included.

Summary of weekly reports from cities, March 11 to April 14, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927—Continued

		MEA	SLES	CASE	RATES					
					Week	ended-			-	
	Mar. 19, 1927	Mar. 17, 1928	Mar. 26, 1927	Mar. 24, 1928	Apr. 2, 1927	Mar. 31, 1928	Apr. 9, 1927	Apr. 7, 1928	Apr. 16, 1927	Apr. 14, 1928
101 cities	929	1, 349	943	1, 326	837	1, 388	867	1, 277	766	2 1, 351
New England Middle Atlantic East North Central West North Central South Atlantic East South Central West South Central Mountain Pacific	1, 233	2, 277 1, 213 1, 063 590 2, 972 1, 855 1, 328 345 830	198 114 1, 138 1, 514 972 436 1, 754 5, 074 3, 163	1, 536 1, 393 1, 009 725 2, 893 1, 426 1, 120 504 807	205 127 925 1, 821 1, 091 284 935 3, 443 2, 761	2, 014 1, 491 1, 023 748 2, 905 1, 696 836 752 580	270 159 957 1,300 936 608 2,114 2,788 3,051	1, 874 1, 504 1, 034 762 2, 285 958 436 708 447	223 172 885 1, 314 1, 311 396 1, 005 2, 080 2, 207	1, 726 1, 739 998 2 946 2, 115 1, 117 428 743 524
	sc	ARLE	r Fev	ER CA	SE RA	TES				
101 cities	431	300	423	309	440	303	394	273	391	1 227
New England Middle Atlantic East North Central West North Central South Atlantic East South Central Mest South Central Mountain Pacific	572 353 426 220 208 62	402 352 296 271 223 160 208 248 217	479 580 347 400 179 162 58 1,130 360	411 374 306 292 224 234 124 177 202	530 612 329 467 197 172 54 1, 210 340	405 398 266 257 221 204 144 186 207	367 594 272 433 177 177 99 941 243	331 366 252 263 179 100 148 239 133	423 581 285 396 150 218 50 950 243	301 273 194 2 292 154 234 128 239 123
did takai -	11111	SMAL	LPOX	CASE	RATES	3				1
101 cities	31	21	30	25	28	25	26	18	. 24	2 20
New England Middle Atlantic East North Central West North Central South Atlantic East South Central Mest South Central Mountain Pacific	0 0 33 49 51 132 45 90 84	0 0 26 64 33 20 44 53 38	0 0 29 69 41 106 74 18 99	0 0 18 125 23 25 36 62 61	2 0 33 30 61 122 62 9 68	0 0 24 64 68 30 36 142 23	0 0 37 42 25 86 103 27 55	0 0 24 84 14 10 4 106 18	0 0 32 55 27 96 87 27 26	0 24 2 52 11 35 16 150 74
	TY	РНОП	D FEV	ER CA	SE RA	TES	10,00	- 15.00	SH T	07.4
101 cities	7	4	8	4	8	5	8	4	8	25
New England Middle Atlantic East North Central West North Central South Atlantic East South Central West South Central Mest South Central Mountain Pacific	5 6 4 0 11 21 12 9 18	7 2 3 4 11 10 12 0 5	5 7 4 4 13 41 29 0	9 4 3 0 11 5 8 0 5	12 6 1 2 16 20 25 0 24	5 4 2 2 21 10 12 0 3	7 6 5 2 9 35 37 0 8	2 1 3 6 12 15 16 0 8	9 5 1 12 13 35 17 9 18	29 5 1 29 4 20 20 0 3

St. Paul, Minn., not included.

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Summary of weekly reports from cities, March 11 to April 14, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927 —Continued

INFLUENZA DEATH RATES

AL					Week g	nded-				
	Mar. 19, 1927	Mar. 17, 1928	Mar. 26, 1927	Mar. 24, 1928	Apr. 2, 1927	Mar. 31, 1928	Apr. 9, 1927	Apr. 7, 1928	Apr. 16, 1927	Apr. 14, 1928
95 cities	31	25	27	32	22	29	23	34	21	130
New England	19	. 7	7 26 16	9 22 35	12 21 15	11 29	7 26 9	16 31	16 21	2
East North Central	18 21 79	12 16	14	16	4	24 18	17	40 16	11 12	2 2 1 2
South AtlanticEast South Central	90	19 84	65 96	39 89	38 106	21 78	40 74	19 73	38	3(84 9(
West South Central	21 18 14	115 80 10	25 27 28	98 133 7	30 27 24	86 53 14	51 36 17	107 80 7	18 18	53

PNEUMONIA DEATH RATES

95 cities	184	221	167	213	163	222	162	215	153	2 207
New England	172	239	156	182	156	225	140	179	156	177
Middle Atlantie	226	258	198	245	186	264	198	244	175	243
East North Central	142	194	141	211	147	207	131	241	141	196
West North Central	114	139	101	118	93	130	137	122	128	2 166
South Atlantic	262	214	218	240	225	230	150	179	184	200
East South Central	191	335	197	240	133	288	218	397	138	183
West South Central	195	263	136	275	-161	242	140	185	76	238
Mountain	161	203	170	168	161	106	242	97	152	186
Pacific	93	125	110	101	128	118	117	105	117	88

² St. Paul, Minn., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1927 and 1928, respectively

Group of cities	Number of cities	Number of cities		opulation of rting cases	Aggregate p cities report	
	reporting cases	reporting deaths	1927	1928	1927	1928
Total	101	95	31, 050, 300	31, 657, 000	30, 369, 800	30, 960, 700
New England	12 10	12 10	2, 242, 700 10, 594, 700	2, 274, 400 10, 732, 400	2, 242, 700 10, 594, 700	2, 274, 400 10, 732, 400
East North Central	16	16	7, 820, 700	7, 991, 400	7, 820, 700	7, 991, 400
West North Central	12 21	10 21	2, 634, 500 2, 890, 700	2, 683, 500 2, 981, 900	2, 518, 500 2, 890, 700	2, 566, 400 2, 981, 900
East South Central	7	6	1, 028, 300	1, 048, 300	980, 700	1, 000, 100
West South Central	8	6 7	1, 260, 700	1, 307, 600	1, 227, 800	1, 274, 100
Mountain	9	9	581, 600 1, 996, 400	591, 100 2, 046, 400	581, 600 1, 512, 100	591, 100 1, 548, 900

FOREIGN AND INSULAR

THE FAR EAST

Report for the week ended March 31, 1928.—The following report for the week ended March 31, 1928, was transmitted by the Eastern Bureau of the Health Section of the Secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Plague, cholera, or smallpox was reported present in the following ports:

PLAGUE Egypt .- Suez. India.-Bombay, Calcutta, Madras, Moulmein, Aden Protectorate.-Aden. Rangoon, Tuticorin, Vizagapatam. India.-Bassein, Bombay, Rangoon. French India .- Pondicherry. Ceylon .- Colombo. Dutch East Indies .- Banjermasin, Pontianak. Dutch East Indies .- Surabaya. China.-Canton, Shanghai, Hong Kong. Siam .- Bangkok. Japan.-Shimonoseki. CHOLERA Kenya.-Mombasa. India.-Bassein, Bombay, Calcutta, Madras, Egypt.-Suez. Moulmein, Rangoon. Kwantung .- Dairen. Siam .- Bangkok. Manchuria.-Mukden. French Indo-China .- Saigon. Sarawak .- Kuching. Chine.-Canton, Shanghai.

Returns for the week ended March 31 were not received from Balikpapan or Sabang, Dutch East Indies, or Basra, Iraq.

CANADA

Provinces—Communicable diseases—Week ended April 7, 1928.— The Canadian Ministry of Health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended April 7, 1928, as follows:

Disease	Nova Scotia	New Bruns- wick	Que- bec 1	Ontario	Mani- toba	Sas- katch- ewan	Alberta	Total
Cerebrospinal fever	6	2	12	1 3 9 9	1	12	13	34

¹ 1 case of poliomyelitis and 15 cases of typhoid fever reported from Province of Quebec for week ended Mar. 31, 1928.

Quebec Province—Communicable diseases—Week ended April 14, 1928.—The Bureau of Health of the Province of Quebec reports cases of certain communicable diseases for the week ended April 14, 1928, as follows:

Disease	Cases	Disease	Cases
Chicken pox Diphtheria German measles Influenza Measles	63 43 15 5 214	Scarlet fever	100 20 50 14

Vital statistics—Quebec Province—February, 1928.—Births and deaths in the Province of Quebec for the month of January, 1928, were reported as follows:

Estimated population 2, 650, 0	000 1	Deaths from-Continued.	
Birth rate per 1,000 population 2	7.4	Measles	15
Death rate per 1,000 population 15	2.4	Pneumonia	257
Infant mortality rate	6.3	Poliomyelitis	2
Deaths from—		Scarlet fever	.12
Cancer	126	Smallpox	0
Cerebrospinal meningitis	2	Syphilis	4
Diphtheria	45	Tuberculosis (pulmonary)	198
Diabetes	26	Tuberculosis (all other forms)	55
Diarrhoea	77	Typhoid fever	18
Heart disease	326	Violence	33
Influenza	108	Whooping cough	32

The following table gives a comparison of the vital statistics of the Province of Quebec for the month of February of the years 1926, 1927, and 1928:

		February	
	1926	1927	1928
Births	6, 472 974 2, 812 847	6, 137 1, 145 3, 244 835	6, 051 1, 025 2, 730 764

HAITI

Cape Haitien—Meningococcus meningitis—April 26, 1928.—Under date of April 26, 1928, an epidemic of meningococcus meningitis was reported in the region around Cape Haitien, Haiti.

IRAQ

Leprosy—1922-1927.—During the six years ended December 31, 1927, a total of 210 lepers was registered in the Iraq Health Directorate, of whom 199 were males, suggesting that a number of female lepers were not registered.

Of the registered cases approximately 56 per cent were anesthetic, 37 per cent nodular, and 7 per cent mixed. The places of origin, which are probably the places of infection, were as follows:

Places of origin	Males	Fe- males	Total cases	Places of origin	Males	Fe- males	Total cases
Baghdad LiwaBasra Liwa	14 20	1	15 20	Kirkuk Liwa	3 11 17	0	3
Mosul Liwa	6	0	20	Muntafig Liwa	17	0	15
Amarah Liwa	62	6	68	Sulaimani Liwa	- 49	0	30
Arbil Liwa	0.0		00	Tribal (unclassified)	6	0	i
Diwaniyah Liwa	10	0	10	Kurdistan	6	0	1
Diyalah Liwa	3	0	3	Persia	28	1	26
Dulaim Liwa	4	0	4	Afghanistan, etc	3	1	4
Hillah Liwa	3	0	3				-
Kerbalah Liwa	1	0	1	Total	199	11	216

MEXICO

Puerto Mexico—Malaria—October-December, 1927—Campaign against hookworm infection, March, 1928.—Malaria was reported present with more than the usual rate of prevalence at Puerto Mexico, State of Vera Cruz, Mexico, during the period October-December, 1927. In March, 1928, a campaign against hookworm infection was instituted at Puerto Mexico and Minatitlan, with special reference to school children, the local units supplying the remedies necessary when gratuitous treatment was required.

SWITZERLAND

Basel—Vital statistics, 1926.—The population of Basel, Switzerland, in 1926, was estimated at 147,426. The birth rate for that year was 16.4 per 1,000 population; the death rate 11.7 per 1,000; and the infant mortality was 34.4 per 1,000 births. The following table gives the number of cases of the more common communicable diseases, and the deaths from these diseases for the year 1926:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis	2 364 84 2,410 28 8 139	8	Smallpox Tuberculosis (pulmonary) Tuberculosis (miliary) Tuberculosis (miliary) Tuberculosis (other forms) Typhoid fever Whooping cough	11 259	0 137 8 35 2 2

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

											H	Week ended-	-pap				
Place	July 31- Aug. 27, 1927	Aug. 28-8ept. 24, 1927	Sept. 25- 0ct. 22, 1927	Oct. 23- Nov. 19, 1927	Nov. 20- Dec. 17, 1927	Dec. 18, 1927- Jan.	January, 1928	ary,	Fe	February, 1928	1928			Marc	March, 1928		Apr. 1928
						14, 1923	21	88		п	18	122	60	10	17	24	31
China:			16		0 0 0												
Canton	200	288	M	121	-												
Pochow Hong Kong			44										!!		11		
Shanghai (settlement and concession)— Trelinding nations	-8		100		0 0 0	8 8 8		-			-		-	1	1		
Swatow	-	AA.	- 11	22													
Tientsin Dutch East Indies: Java-Batavia.	2008	-	24	- 83 °											11	11	
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Madras			2.8				-	:	9 9		20	100	= -	P		1-01	i
Madras Presidency	1.10	, n	24	3, 073	3, 702 19, 104	88	1, 163	1,301	1,305	408	200	457			111	11	
Negapatam	90						**	1		1	2	2	-	-			-
Rangoon	0	040	@ c	04.0	90 %	- 00	*		-	-	10	122	ಣರ	***	40		
Tuticorin	20				000										4	0	-

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER-Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place											•	Week ended-	-papu					
	July 31- Aug. 27, 1927	Aug. 28- Sept. 24. 1927	Sept. 25- Oct.	Oet. 23- Nov. 19, 1927	Nov. 20- Dec. 17, 1927	Dec. 1827- Jan.	1	January, 1928	Fe	February, 1928	1928			Man	March, 1928	88		Apr. 1928
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Straits Settlements: Singapore.	200-	Z en -	14000	5461-4	, 2001-0-4	22222	5=1-01-	282	288	-185	882	==28	221-	300	œ45	12	16	2=
Japan		1 9 1 1 9 1 1 9 8 1 9 8				11	11									5 6 8 5 8 8 6 8 8 8 8 8 8 8 8		
S. S. Tabaristan: At Basra, Iraq.		1 1	1	0 0 0 0 0 0 0 0 0 0			1 1	8 8 9 6 9 6 8 8 8 8										

¹ From July 19 to Dec. 25, 1927, 1,479 cases of cholera were reported in Iraq, with 1,635 deaths, as follows: Amarah Liwa, 261 cases, 205 deaths; Baghdad Liwa, 80 cases, 60 deaths; Illiah Liwa, 105 cases, 72 deaths; Diyanah Liwa, 1 case, 1 deaths; Julyan, 105 cases, 94 deaths; Hillah Liwa, 105 cases, 71 deaths; Kerbalah Liwa, 76 cases, 80 deaths; Kut Liwa, 60 cases, 44 deaths; Muntafig Liwa, 22 deaths; At cases, 130 deaths; A cases, 100 cases

	July-Sep-	October.	Nov	November, 1927	1827	Dec	December, 1927	128	Jar	January, 1928	88	Feb	February, 1928	878	March, 1928	1, 1928
Place	1927	1927	1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-31 1-10	1-10	11-20	21-29	1-10	11-20
Indo-China (French): Cambodia Cochin-China	3, 176 821 846 846	252	2525	27. 12.	883	125	38.22.2	98	, 883	98	93 115 130	288	1138	123	208 206	18 22 712
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PLAGUE

					Dec					W	Week ended-	-pei						
Place	Sept.	Sept.	Nov.	20- 20- Dec.	18. 1927- Jan.		January, 1928		February, 1928	y, 1928			Ma	March, 1928	8		April, 1928	1928
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Arabia: Aden	1				10	13	23 ×	38	88	28	45	17.8	158	189	148	151	163	
Argentina: Bahia Blanca district.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1 1 1 1 1 1	60						3							-	
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CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER-Continued

PLAGUE-Continued

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Uganda	!	226 99 158 88	33	55"	52.	22-		9	•	-				8		61		
Teneriffe	AD			-	-		00	ed	80	,								
Ceylon: Colombo. China: Tungliao Dutch East Indies:	ADAA (3 200		20	1.0			-		801	0000	4-		200		4.01		
Celebes-Makassar.	DADA	•	99	1 1		11												
Java Batavia and West Java. Cheribon	1	68 129 68 129	828 132 132	1, 017 154 152 152	. 128. 25. 188. 1	25.34	37.5	22	1 22	15	* 88							
East Java and Madure. Pasceroan Residency. Surabaya Residency		18 17 71	99	∞∞2 ₁ 2 ₁	I-t-	1010	8161		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 1 1 0 0 0 0 0 0	4	8 9 6 6 8 8 9 8 8 8 9 9 9 9 9 1 9 9 9 9 1 9 9 9 9	1 1 0 1 0 1 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0				
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Senegal:	11		12	22	900	N 00	0 00	000	19 69	19 69	000	N C4		N C4			
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Tunisia 3 Turkey: Constantinople	O	-		64					1	1	•			:	11		11
	-			4	100000000												

132 cases and 5 deaths from plague in Minich Province, Egypt, for week ended Apr. 21, 1928.

During January, 1928, 5 cases of plague were reported in interior of Senegal; 17 cases with 13 deaths during last 2 weeks in February; 8 cases and 4 deaths, Mar. 11 to 29, 1928.

8 cases of plague with 6 deaths were reported in Bengardane region, Tunista, Mar. 17 to 27, 1928.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE-Continued

			Ang	Sept									Week	Week ended-						
Place			Sept.	Oct.	Nov.	20- Dec.	1927-		January, 1928	828	Feb	February, 1928	128	_	N	March, 1928	828		April	April, 1926
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Union or South Africa: Cape Province.		- 01					61	1				1								
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Northern Caucasus.	and Cur	ספספ	42						0 0 0 0 0 1 2 0 0 0 0 1 3 0 0 0 0 0 6 0 0 0 0 1 3 0 0 0 8 0 0 0 0						1 1 1 A					
At La Plata, from Rosario, Argentina 8. S. Aghios Gerasimos, at Vigo, Spain.	pain	00				3	1	-	1 t t t t t t t t t t t t t t t t t t t											
Place 14	Sep- O Sep- Der 11927	Octo- ber 1927	No- vem- ber 1927	De- cem- ber 1927	Janu- ary 1928	Feb- ruary 1928	March 1928	-		Place	8		July- Sep- tem- ber 1927	Octo- Der 1927	No- Vem-	De- Cem- 7 1927	-	Janu- Jary r 1928	Feb- ruary 1928	March 1928
Algeria: Algiers British East Africa: Kenya. C Reuador: Guayaquil.	95	21324	No.	91	84.	90		X ;	Tana	Madagascar—Continued. Tananarive Province	rovine			I SEA	88	071	130	155	123	
Indo-China (French)	286	156	180	24.7.25	388	342		EZ A	Mauricius. Nigeria				0000	-888	552	9999	881	99	43	
	.1-88	999	182	1222	11.85	888			Callao. Lima.	0					-	• -	100			
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Moramanga Province D	121	58	\$7	881	10	នន	6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1	1 1						-	_					

SMALLPOX

[C indicates cases; D, deaths; P, present]

	Inly	Ane	Sent	Ort	Nov	Dec.				1	We	Week ended-	1					
Place	Aug.	Sept.	a dia	Nov.	Pec.	1927- Jan.	Janua	January, 1928	ŧ	Februs	February, 1928			Marc	March, 1928	_	V	April, 192
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Rio de Janeiro.	200	1				1 1			1 1		E E E E E E E E E E E E E E E E E E E		1 1		11.	11	11	11
British East Africa: Tanganyiki		200	P	-6	d	00	*		1	1 1				11	- 1	1	11	-
	5 68	30	14:	185	252	236	80		230		200	117	38	2"	-	-	:	1
hern Rhodesia	DO					1			1	ಣ		34-	12	000				
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	-		1	-	.00	:	-			61	-		II	-		-	1	
Manitoba	13	10.	-	19		21.	1		-	=		-	9	-	-	9	11	1 1
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Halifax	99	- 22	-8	264	1	212	22	1	8	100	, 9	N.	38	8	1	38	106	10
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Sherhooke	-	-																

¹ The report of 2 cases of smallpox in New Brunswick during the week ended Sept. 24, 1927, which has been published in prior issues of the Public Health Reforms, was erroneous. No smallpox was reported in New Brunswick during September, 1927.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER-Continued

SMALLPOX-Continued

	July		Sept.	Out	Nov	Dec.					W	Week ended-	-pe					
Place	Aug.	Sept.	ងខ្លួង	No.	Dec.	1927- Jan.	Janua	January, 1928		Februa	February, 1928			Mar	March, 1928	98	A.p.	April, 1928
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anada—Continued. Saskatchewan Moose Jaw Regina Saskatoon eylon: Colombo.	25000	899	E 8 8	26 1	800	84 4	84 81	1000	36	¥4 -4	7 6	∞ 04 − 04 − 04 − 04 − 04 − 04 − 04 − 04	9 9	1-10	70	1-10		2 0
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Chefoo. Foochow Hong Kong	20200		4 4	d	A A	4-		A.		A		2,00		م	A 9	1116	9	1 1 19
Manchuria— Changchun. Dairen			1	6.9			-	-	- 100					*		P4	- 1	e
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CROSSES IN RULE WHITTON, LABOR STORMS THE STRUCTURE STORY

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER-Continued

SMALLPOX-Continued

Egyline (Station)	Jac			Oet.	Nov.	Dec.					W	Week ended-	-pa					
Place	31- Aug. 27.	Sept.	# <u>2</u> 2	Nov.	Dec. 17.	79.27 Jan. 1925	January, 1928	y, 1928		February, 1928	y, 1928	-81		Marc	March, 1928	00		April, 192
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Jalisco (State) Oundellajan Mantanillo Metico City and surrounding territory San Luis Potosi	DAADAG				61 4	-			-		8	***	-		-		11111	
Tampeo. Torren. Nigeria: Southern Provinces. Palestine: Jerusalem.	ADDA	-	64					-				1	-					
Poland	POP	67-			1	9	-	-	-		-							

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Slam		0000	10	27 15 15 3		6	gan	13		1004	9			-	-3		800	
Spain: Malaga		9 9		-	-	-	-											
Straits Settlements: Singapore		111			-		-04 0	8 6 8 6 8 8 8 8 8 8 8 8 8 9 8	1 1 1 3 1 1 4 1 6 1 1 6 1 1	117		1		111	1	-	-	
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PPBV BUYCLE UNVIENDE LABBER LEVER FORESTER

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER-Continued

SMALLPOX-Continued

[C indicates cases; D, deaths; P, present]

Place	July- Sep- tember	Octo- ber	No.	· · · · · · · · · · · · · · · · · · ·	Janu- ary	Feb-	March	Place	July- Sep- tember	Octo- ber	No- vem- ber	Der Der	Janu- ary	Feb- ruary	March
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TYPHUS PEVER

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	Nov. 20 Dec. 17, 1927		
	Oct. 23- Nov.19, 1927		
	Sept.25- Oct. 22, 1927		
	July 31 - Aug. 28 - Sept. 25 - Oct. 23 - Nov. 30 - Decem- Aug. 27 Sept. 24 Oct. 22 Nov. 19 Dec. 17 Dec. 17 Dec. 1927 1927		
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of Mary Comments	Approx.		geria: Algiers

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HOTERY STOCK SHITTLOY DESIGN OF

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER-Continued

TYPHUS FEVER-Continued

				1927			Nove	November, 1927	1927	De	December, 1927	1927	Ja	January, 1928	928	Fet	February, 1928	878
Place		July	August		Sep- tember October		1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-30	21-31	1-10	11-20	21-20
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YELLOW FEVER

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Place	July 3-30,	July 31- Aug. 27, 1927	Aug. 28- Sept. 24, 1927	Sept. 25- Oct. 22, 1927	Oct. 23- Nov. 19, 1927	1		Decet	December, 1927	1927	-	2	January, 1928	1928		Fe	February, 1928	1928		
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